A Course of Twelve Lectures
ON THE
STRUCTURE AND DEVELOPMENT
OF THE
VERTEBRATE SKELETON.

Recently delivered at the Royal College of Surgeons of England,

BY PROFESSOR HUXLEY, F.R.S.

LECTURE VII.—(*Concluded.*)

I WILL now leave the sharks and rays, and pass on to speak of the sturgeon and spatularia, which also possess, as I have already said, a cartilaginous cranium; but instead of that cartilaginous cranium being encrusted with minute polygonal plates of osseous matter joined one to the other, they have definite ossifications upon their surface—ossifications which resemble very much in their arrangement the bones which I have described to you in ordinary osseous fishes. If you take a sturgeon's head and soak it in a little boiling water, you will soon be able to separate not only all the upper bones, but also the basal bones—the great bone which runs along the basal portion of the skull and the vomer—just as the bones of the pike were stripped off; and so much further does the process go than in the pike, that you have left no bony matter at all in direct connexion with the skull, but the total result would be a cartilaginous mass, which lies in the interior of the skull. Fig. 49 is the

FIG. 49.

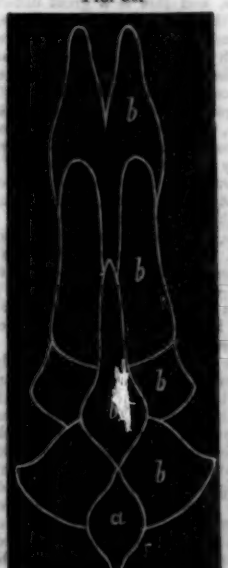
Cartilaginous skull of sturgeon: side view. *a*, Occipito-cervical mass. *b*, Vertebræ. *c*, Parietal region. *d*, Pre-frontal ditto. *d**, Ethmo-vomerine rostrum. *e*, *f*, Upper and lower parts of hyo-mandibular. *g*, Symplectic. *h*, Mandible. *i*, *k*, Upper dentigerous cartilage. *l*, Palatine. *m*, Maxillary. *n*, Small separate bone. Below *n* is the pterygoid.

primordial cartilaginous cranium of the sturgeon represented in a lateral view; and you perceive it is composed upon essentially the same type as that of the pike. Above and behind *e* (Fig. 49) is the otic enlargement in the sturgeon's cranium, the cavities in which the semicircular canals are placed: there are the same in the pike's skull. There are the post-orbital processes in the pike, and there are the post-orbital processes in the sturgeon (below *c*); there are the pre-orbital or ant-orbital processes in the pike, and there are the same parts in the sturgeon (*d*); there is the nasal cavity in the pike, and there is the nasal cavity in the sturgeon (in front of *d*); there is the long rostrum in the pike, and there is the long rostram in the sturgeon (*d**). So that you see there is a complete correspondence between the two.

If you make a section of this primordial or cartilaginous cranium, you find that the cranial cavity in it is comparatively small, but all the relations of the parts are such as I have pointed out to you so often in other cases. There is the cavity in which the brain is lodged; there is the space in which the labyrinth and semicircular canal are placed; there is the sella turcica; the exit of the optic nerves; the olfactory nerves; the eighth behind the otic capsules; and fifth in front. So that all the relations of the nerves remain exactly as they were in other cases. But there is a remarkable feature about this skull which we should not find in the pike's primordial cranium. In the first place, the notochord, which runs through the whole vertebral column of the sturgeon, comes up and remains in a persistent shape in the base of the skull, so that when the skull is a little macerated in hot water you can pull out with ease the taper anterior extremity of the notochord which lay in the skull-base, and which terminated just immediately behind the sella turcica. That persistence of the notochord is a remarkable feature of the sturgeon's skull. But a still more singular peculiarity is the fact that the great mass of cartilage represents not only the cranium, but a good deal of the vertebral column as well. At least seven of the anterior vertebræ are fused together into one, forming a continuous tubular mass, under which the basilar bone of the skull extends. We shall find that this fusion of the vertebræ of the trunk of the skull goes on to a remarkable extent in many fishes; but hardly to a more remarkable extent than in the sturgeon. Then at the hinder part of the sturgeon's skull there are two singular processes raised up—in truth, a sort of transverse processes of the vertebral column. You must remember that the skull proper ceases at *a*; that all the hinder part belongs to the vertebral column; and that the processes which correspond with the transverse processes run obliquely upwards and abut against the upper shoulder bones. That is a singular peculiarity of the sturgeon; one, so far as I know, only paralleled amongst osseous fishes in the silaroids, where the anterior part of the vertebral column is in the same way fixedly united with the skull, and where the transverse processes of this part of the vertebral column ascend in the same oblique fashion and abut against the supra-scapular bone. The ossifications upon the surface of the sturgeon's cranium are exceedingly interesting on account of the approximation which they present, not only to those bones which we know as membrane bones in the pike's skull, but also to certain bones which in the pike and in man are cartilage bones. Every one of these bones, you must understand, —the whole of the bony substance of the cranium of the sturgeon,—is entirely developed from membrane.

There is yet another singular circumstance about the sturgeon—a singular difficulty about the interpretation of the parts of the sturgeon's skull. We have all seen in the sturgeon that the upper line of the neck is continued along the body by a series of bony shields. Now, there is every reason to believe that these bony shields are ossifications of the uppermost layer of dermis or true skin. If we take one of these bony shields (Fig. 50, *a*), you perceive that it is as like that which is the

FIG. 50.



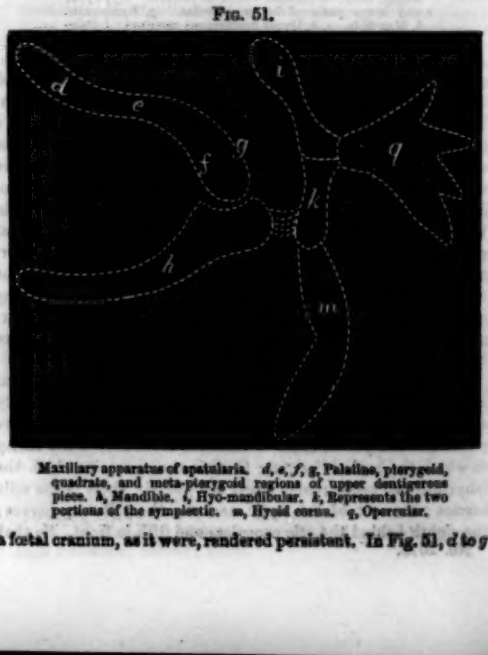
Upper skull plates of sturgeon. *a*, 1st nuchal plate. Middle *b*, Supra-occipital ditto. Lateral *b*, *b*, *b*, *b*, Pre-frontal, frontal, parietal, and supra-scapular plates.

supra-occipital (Fig. 50, *b*) as possible, and that it has the same texture and position as those two which are the parietals (Fig. 50),

and is quite like the frontals (Fig. 50). So that there arises the question, are these bones in the upper surface of the sturgeon's skull perichondrial bones, ossifications in the perichondrial membrane, or in what corresponds to periosteum, as appearing in the pike, or are they ossifications of the superficial layer of the dermis? Because you will perceive that these are two very different things indeed. I have no reason to doubt that in the pike the bones which are known as parietal and frontal bones are formed in the perichondrium, or in that which corresponds to it; that is, in that layer of fibrous and connective tissue placed, not at the outermost surface of the true skin, but in immediate contact with the cartilage. So that supposing the deeper layer of membrane to be the place in which the pike's frontal bone is developed, then, if the upper skull plates of the sturgeon are really developed in the same layer as its dermal plates, they would not correspond to the upper skull bones of the pike, because they would be formed in the most superficial layer of true skin, not in the deep layer which is in immediate contact with cartilage. I put this before you as a point upon which I can give you no precise information, but as a point to be worked out with great care before we can speak with perfect confidence as to the homologies of these bones. In my experience in working out these matters, it has appeared to me that there is nothing in which nature seems to delight more than in leading one astray with *ignes fatui* of this kind—leading one to confound one part with another, or to identify things which are not in reality precisely corresponding. It would be a curious thing if these ossifications in the sturgeon's skull, these membrane ossifications, should not exactly correspond with the ossifications in the membrane of the pike's skull, because although they do in a certain way correspond to the bones of the pike's skull, yet it is in a rough kind of way—they do not correspond satisfactorily. Their form is irregular, and if you put them in their places you will find, although there is a general correspondence between the arrangement of bones in the sturgeon and those in osseous fishes, yet it is an irregular and unsatisfactory sort of correspondence. There is a great plate which forms the most anterior of the great shields of the back (Fig. 50, *a*); then there is a curiously-shaped bone, sending a tongue-like process forwards (Fig. 50, middle *b*), which in all its relations to the parts underneath corresponds with the supra-occipital. Then come two great plates, one upon each side, which are the supra-scapular bones (last lateral *b*), the uppermost parts of the bones of the shoulder arch completely fixed to the sides of the supra-occipitals. Then there are two bones which correspond in position with the epiotic bones; but they are membrane bones, or it may be that they are dermal bones, whereas the epiotic bones, as we know, are ossifications in cartilage, and this is a great difference. Then come two great bones (third lateral *b*), the parietals, and two others, the frontals (second lateral *b*). Then there are two bones (first lateral *b*), which we should call pre-frontals, in front of the orbit, and then the large post-frontals; but the pre-frontals and post-frontals in osseous fishes are developed within the substance of the cartilage; here they appear to be dermal bones. So that it is possible, these not being developed in precisely the same region, supposing it to be so, that it may give rise to the sort of discrepancy in arrangement, that sort of mere approximation to the arrangement of the pike's skull which we find in the sturgeon. But at the front part of the snout the resemblance becomes altogether destroyed. There is a mere polygonal pavement of bone, which extends upon the surface of the cartilaginous cranium. There is no such doubt as this, however, about the great bone which extends upon the under surface of the skull, which corresponds exactly to the great basilar bone that we found in the pike. And then there is a bone which, although partly imbedded in the cartilage, corresponds very well with the vomer in the pike.

The difficulties that exist in interpreting satisfactorily the upper part of the skull are much less than those which appear at first sight (though we shall be able to remove them, I think, easily enough) in the interpretation of the inferior arches, which are more singular in the sturgeon than they are in the shark. The sturgeon is a ground-feeder, and it has a mouth like a proboscis, which can be moved quite freely; this mouth is connected with an elastic ligament, which can be pushed out or retracted in the ground in which the sturgeon grovels. There is a sort of upper jaw apparatus (Fig. 49, *i*—*m*), or we might compare it closely with the upper dentigerous arch of the shark. There is the lower piece (Fig. 49, *h*), which certainly represents the lower jaw. The upper part articulates directly upon the lower, so that in that respect it corresponds closely with the dentigerous upper bone of the shark. Then the lower piece is connected by ligament with a long pedicle, consisting of three pieces, placed upon the sides of the skull. *g* (Fig. 49) is one of the pieces, the lowermost; then there is the second (*f*), and the third (*e*). The uppermost of the three articulates quite movably upon the sides of the skull, and upon that portion of the sides of the skull which corresponds with the periotic capsules. Then at the junction of one of these pieces with the other there is a small styloid bone which gives attachment to the hyoidean arch. And, besides the cartilaginous piece, there are bony elements which enter into this complex maxillary apparatus of the sturgeon. The lower jaws, for example, are fairly well ossified. Upon each side of the upper jaw there are no less than four distinct ossifications. There is a great bony plate inside (Fig. 49, *l*), a large bony plate which comes curving outwards with an arch to the outer side of the articulation of the lower jaw (*n*), a little bony piece (below *n*) which lies outside the articulation of the lower jaw, and a small bone (*m*) which is placed upon the outside of the great upper cartilage. If we look at the cartilages, we shall not long be in doubt, if we compare them with those of the shark, the nature of which has already been determined. It is quite easy to see that the upper cartilaginous mass corresponds with the upper dentigerous bone of the shark, articulating as it does in the same way with the lower bone; and that the lower part corresponds with the lower jaw of the shark. Then, again, it is obvious that the three ossicles (*e*, *f*, *g*) correspond perfectly well with the suspensory of the shark, divided into three portions. And you will notice that the lower piece corresponds in character with the symplectic of the osseous fish, the articulation of the hyoidean element taking the place of the junction of this supposed symplectic with the upper part, just in the same way as with an osseous fish. On the other hand, the lower part of the pedicle is connected with the lower jaw by mere ligament. So that, having once understood the shark's jaw, and explained it by the analogy of the fœtal apparatus of the osseous fish, there is no difficulty about interpreting the sturgeon in the same way. In Fig. 49, *e*, *f*, *g* correspond to the hyo-mandibular and symplectic, *i* to *n* to the palatine apparatus, and *h* to the lower jaw. Then what is the meaning of the bones seen upon this apparatus? That below *n* answers so closely to the inner ossification which we found in the lepido-siren, that there can be little doubt about its corresponding with the pterygoid. Again, *l* (Fig. 49), which lies upon the outer side of the cartilage, answers to the palatine; *m* (Fig. 49) would seem to correspond with the upper jaw. The outer little bone (*n*) is a very doubtful one. Leaving that aside, the interpretation of all the rest of the parts becomes sufficiently easy, there being no doubt in my mind that the great cartilaginous mass upon which these bones are, as it were, pasted and stuck, corresponds with the upper dentigerous bone of the shark and the palatine arch in osseous fishes—a conclusion as much confirmed by the study of development as by purely anatomical considerations. Indeed, it becomes still more plain if, instead of studying the complex sturgeon, you examine the spatularia, where the skull is really

FIG. 51.



Maxillary apparatus of spatularia. *d*, *e*, *f*, *g*, Palatine, pterygoid, quadrate, and meta-pterygoid regions of upper dentigerous piece. *h*, Mandible. *i*, Hyo-mandibular. *k*, Represents the two portions of the symplectic. *m*, Hyoid cornu. *q*, Operculer.

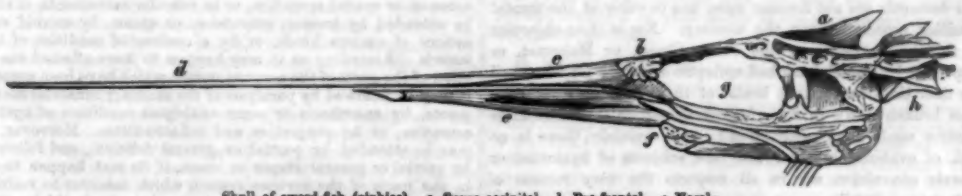
a fœtal cranium, as it were, rendered persistent. In Fig. 51, *d* to *g*

is a long cartilage stretching from the pre-frontal region to the articulation of the lower jaw, and it articulates directly with the cartilage of the lower jaw (*h*). There is a long pedicle (*i*) coming down, giving attachment to the operculum (*q*), which is exactly what we saw in the fœtus of the osseous fish. There is a second piece (*k*), and a third piece (the lower part of *k*), the two together appearing to represent the symplectic, and (below *k*) the attachment to the hyoidean apparatus; and then they are connected together by ligament just as they are in the fœtal osseous fish. Then there are certain ossifications: one upon the outer sides of *d*, which seems to represent the palatine as developed in the osseous fish, and one inside, which appears to represent the pterygoid. So that, as it appears to me, all these strange and aberrant forms of the mandibular and masticating apparatus in the fish, which have given rise to so much discussion, receive the simplest explanation by the study of development—a sort of explanation which does not admit of any doubt, or of being rebutted by converse arguments.

What remains to me of my present lecture (it is important to dwell largely upon these matters, as they are somewhat difficult to understand) I must occupy by running rapidly over the great modifications of form undergone by the cranium in osseous fishes. Leaving the cartilaginous cranium, as before we left the membranous cranium, I must say a few words about the osseous cranium of the fish, and afterwards pass on to reptiles and other vertebrata.

There are two principal forms of cranium found in osseous fishes: in the one, the form of the cranium is like that of the pike; in the other, it is like that of the carp. In the pike the cranial cavity is large, and where the pre-sphenoid is developed it takes the form of a plate or septum between the orbits; the consequence is that the chamber in which the olfactory capsules lie is exceedingly narrow and small. That is the shape not only of the cranium of the pike, but of a vast number of other fishes—in fact, of the majority of osseous fishes. The shape of the cranium of the carp, on the other hand, is exceedingly different. The cranial cavity continues pretty nearly of the same dimensions throughout its whole length; it is not deeper in the posterior portion than in the anterior. There is no solid inter-orbital partition. Crania with inter-orbital partitions and crania without them seem to me to be the broadest distinctions that can be drawn between the two different kinds of crania in osseous fishes. Then the crania of osseous fishes differ immensely in the extent to which the primordial cartilaginous cranium persists. Sometimes you see it of a prodigious size, as in the pike; at other times it is reduced to a mere nothing, as in the carp, perch, and other fishes. In the cod it is very small; in fact, in most fishes it is small. In the pike and in the cyclopterus, the cartilaginous cranium remains of very large dimensions throughout life. The development of the under cavity, in which the orbital muscles are lodged, varies very much; the so-called sphenoidal sinus, and the presence or absence of the distinct opisthotic bone, are points in which the crania vary very much: it is very distinct in the cod, while we do not meet with it in the pike. The presence of a true pre-sphenoid and orbito-sphenoid is a point in which osseous fishes differ very much indeed. In the pike these parts are very feebly developed. There are some, such as the carp and many others, in which there is a distinct ossification representing the pre-sphenoid and orbito-sphenoids. But that feature which gives the greatest appearance of singularity to the physiognomy of the osseous fish, if I may so say—that point in which they vary—is the character of the elongation of the parts of the front of the head, and of the jaws. Figs. 52 and 53 represent two of the extremest cases I know of—two exceedingly long-headed fishes: one (Fig. 52), the sword-fish (xiphias); the other (Fig. 53), the fistularia. They both have exceedingly long heads, yet these two heads are formed upon totally different principles. In the xiphias (Fig. 52) the elongation is produced by the enormous prolongation of the pre-maxilla (*d*), the nasal bone (*c*), and to some extent the maxilla (below *c*); so that the front part of the skull is not much prolonged: the lower jaw (*e*) attains also a very considerable length. In the xiphias, you observe, the enormous elongation of the head is produced by the elongation of the jaws proper—that is to say, of the pre-maxilla and nasal bones. In the fistularia (Fig. 53) it is exactly the reverse: the head is excessively long—longer in proportion than the xiphias; the maxilla (*d*) and mandible (*e*) are a mere nothing placed at the extremity of the snout; the whole elongation being the result, in part, of the prolongation of the nasal region of the skull (*b* to *d*), and, in part, of the most extraordinary elongation which takes place in the hyo-mandibular and symplectic and quadrate bones (Fig. 53, *f*), and the enormous inter-operculum which lies between them. So that in this case the inclination of the suspensory of the lower jaw to the general axis of the skull, the angle which it makes, is an exceedingly acute one. The other great extreme in structure in the arrangement of the jaws of osseous fishes is seen in eels, congers, and polypterus, where, instead of these bones forming an excessively acute angle, as in the fistularia, they form a somewhat obtuse angle; this being a sort of inclination towards the batrachian type of structure.

FIG. 52.



Skull of sword-fish (xiphias). *a*, Supra-occipital. *b*, Pre-frontal. *c*, Nasal; below it the maxillary. *d*, Pre-maxillary. *e*, Mandible. *f*, Basi-hyal. *g*, Inter-orbital space. *h*, First vertebra.

FIG. 53.

Skull of fistularia. *a*, Occipital region. *b*, Pre-frontal. *c*, Ethmoidal. *d*, Maxilla. *e*, Mandible. *f*, Suspensorium and inter-opercular.

MILITARY SURGERY.—M. Legouest, a well-known and highly-esteemed professor and army surgeon in France, who holds a very responsible position in the military hospitals of Paris, is on the eve of publishing a work of nine hundred pages with the following title: "A Treatise on Military Surgery." In the *Gazette Hebdomadaire* of the 3rd instant, a detached chapter, on the Statistics of Amputation, is given from the work. This chapter will be read with great interest, since the question is still unsettled whether immediate amputations in the field are or are not desirable. M. Legouest calls particular attention to the conveyance of amputated patients to distant or crowded hospitals, and attributes the high mortality in the French army, during the Crimean campaign, to the unhealthy state of the Constantinople hospitals.

A Course of Lectures

ON CERTAIN DISORDERS OF

THE BRAIN & NERVOUS SYSTEM,

WITH SPECIAL REFERENCE TO THE

CHANGES IN OPINION AND PRACTICE WHICH RESULT FROM RECENT RESEARCHES IN PHYSIOLOGY AND PATHOLOGY,

Delivered at the Royal College of Physicians,

BY CHARLES BLAND RADCLIFFE, M.D.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, PHYSICIAN TO WESTMINSTER HOSPITAL, ETC.

LECTURE V.—PART II.

(3) ON THE PATHOLOGY OF CONVULSION AS DEDUCED FROM THE CONDITION OF THE INNERVATION IN THIS DISORDER.

86. *The signs of a weak or jaded brain are scarcely ever absent in persons who are liable to epileptic and other chronic forms of convulsive disorder.*

It is an indisputable fact that idiots are very often epileptic, and it is surely no mere accident that the head of the epileptic is so often wanting in proper dimensions and proportions as to suggest to the least imaginative observer its near kinship to the head of the idiot. It is also an indisputable fact that a not uncommon ending of epilepsy is in dementia, and that there are very few, if any, cases of epilepsy in which the shadows of this dementia are not forecast upon one or other of the mental faculties, especially upon the memory. Nor is it an objection to this view that men like Julius Cæsar, or Mahomet, or Napoleon I., should have had epileptic seizures; for who shall say that the overwrought brains of these men may not have been broken down in some important particulars before these seizures made their appearance? And, certainly, there is no lack of evidence to show that the subjects of hysterical or choreic convulsion are in all respects the very reverse of "strong-minded."

87. *All signs of mental life are abolished, or on the point of being abolished, during the paroxysm of convulsion.*

In general convulsion of an epileptic or epileptiform character the mind is a perfect blank, and so also, with very few exceptions, in the partial forms of the same convulsions. In the convulsion of hysteria, and in the more severe forms of choreic movements, the will is altogether in abeyance, and the intellectual state is one which approaches very closely to that of unconsciousness. Hence it is not to be supposed that convulsion is in any way connected with exalted functional activity of that part of the brain which ministers to the mental faculties.

88. *Convulsion must not be looked upon as a symptom of active inflammation of the brain or its membranes.*

In acute inflammation of the brain or its membranes convulsion may occur during the cold stage of the disorder, or, more rarely, when the stage of true inflammation is subsiding into the stage of coma or collapse, but never during the existence of active phrenitis. It seems, indeed, to be a constant rule, that the hot stage of active inflammation of the brain or its membranes is attended, not by convulsion, but by acute delirium, such as is met with in phrenitis. In the more passive forms of this inflammation convulsion is a much more frequent phenomenon than in the acute forms, and it is not so easy to determine the relations of the convulsion to the inflammation; but, so far as I can make out, convulsion is altogether incompatible with the presence of the periods of vascular reaction, even though these periods be but faintly marked. In the great majority of these cases, indeed, true inflammatory excitement of the circulation is always absent; and the delirium which may be present is no proof to the contrary, for this delirium is of the type which is met with in delirium tremens, and not of the type which is met with in acute phrenitis. It would seem as if the cerebral disorder in these cases did not get beyond the stage of rigor—the stage of "irritation," of which I shall have more to say presently. At any rate, I know of nothing in the clinical history of these passive forms of inflammation of the brain or its membranes which is at all calculated to contradict the previous conclusion—that convulsion is altogether incompatible with the period or periods of vascular reaction. Nor is there any evidence of a contrary character in the disclosures of the dead-house.

89. *Convulsion must not be looked upon as a symptom of a congested condition of the cerebral veins.*

As it seems to me, the clinical history of disease is opposed to the theories which ascribe convulsion to a congested condition of the cerebral veins. In whooping-cough these veins are often congested in a very high degree during the paroxysm, and yet convulsion is only an accidental accompaniment of the paroxysm. In congestion of the lungs, also, these veins are greatly gorged with black blood; and the consequences of this engorgement are dreamy sleepiness, stupor, perhaps coma, rarely convulsion. Nor is the case different where extreme venous congestion of the brain is brought about by straining or in any other way; for here the symptoms are coma and paralysis, not coma and convulsion; apoplexy, not epilepsy. Moreover, the recent experiments of MM. Kussmaul and Tenner show very plainly that the effect of tying the internal and external jugulars of rabbits is *not* to convulse these animals, but only to stupefy them for the first twenty-four or thirty hours, and, in some instances, to cause them to gnash their teeth for a short time. Indeed, there is nothing in all this evidence, physiological or clinical, to nullify the conclusion already drawn—that venous blood has no special action in producing convulsion (¶ 38).

90. *The peculiar condition of the nervous system which is known under the name of "irritation," and which in the majority of cases has a great deal to do with the production of convulsion, is in no sense the equivalent of inflammation.*

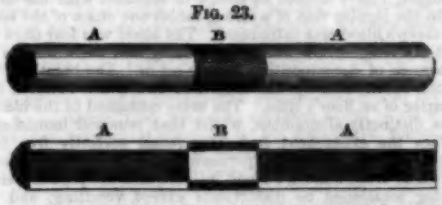
The morbid condition of the nervous system which is known under the name of "irritation" may be attended by various definite symptoms, and followed by various definite results. According as it may happen to affect the parts of the nervous system which minister to ordinary muscular movements, to common or special sensation, or to vascular movements, it may be attended by tremor, convulsion, or spasm, by morbid sensations of various kinds, or by a contracted condition of the vessels. According as it may happen to have affected one or other of the parts of the nervous system which have been named, it may be followed by paralysis of the ordinary muscular movements, by anæsthesia or some analogous condition of special sensation, or by congestion and inflammation. Moreover, it may be attended by partial or general delirium, and followed by partial or general stupor or coma, if its seat happen to be in the parts of the nervous system which minister to volition and reason. Nor is it difficult to see how it should be thus attended and thus followed.

The circumstances which give rise to the state of "irritation" in some part of the nervous system, and which favour the development of this state, are circumstances which appear to produce the reversal of the natural electrical relations of the exterior and interior of the nerve-fibres at the seat of "irritation." It has been seen in a former lecture (¶ 3) that the natural electrical relations of the exterior and interior of the nerve-fibres are reversed when these fibres are acted upon by certain mechanical injuries, or when their vitality is upon the point of extinction. It has been seen, that is to say, that the natural electrical relations of the exterior and interior of the nerve may be reversed under circumstances which may give rise to the state of "irritation" in a nerve or nerve-centre, and which favour the development of this state: for nothing is more certain than that mechanical injuries to a nerve or nerve-centre may give rise to a state of "irritation" in these parts, and that a depressed condition of the vital powers generally is favourable to the development of this morbid state. And thus there is no difficulty in supposing that the natural electrical relations of the exterior and interior of the nerve-fibres may be reversed at the seat of "irritation."

Now, in the case where the natural electrical relations of the exterior and interior of the nerve-fibres are preserved, all parts of the exterior of the fibres are electrified positively, and all parts of the interior negatively, and the electric condition of the exterior and interior appears to be one of static tension, so long as the nerve-fibre remains in a state of inaction (¶ 6). And this appears to be the case, because *all* parts of the exterior are electrified positively, and because *all* parts of the interior are electrified negatively; for it is a law of electricity that parts electrified with *similar* electricity repel each other. Nor is this condition of static tension *in* the exterior and *in* the interior of the nerve-fibres neutralized by a contrary action *between* the exterior and interior; for there is something in the constitution of the fibres, be that what it may, which keeps the exterior and interior in opposite electric conditions, and

which prevents the opposite electricities of the exterior and interior from rushing together and neutralizing each other. But in the case where the natural electrical relations of the exterior and interior are reversed in a certain part of a nerve-fibre, instead of all parts of the exterior being electrified positively, and all parts of the interior negatively, some part of the exterior is electrified negatively, and some part of the interior positively, as is shown in the accompanying diagrams by

FIG. 23.



making the parts of the fibre which are occupied by negative electricity of a darker shade than the parts which are occupied by positive electricity: and the result is that there must be a continual combination and disappearance of electricity *in* the exterior and *in* the interior between the parts of the fibre in which the natural electrical relations of the exterior and interior are preserved, and the part in which these relations are reversed—between, that is, the parts which are indicated in the diagram by the letters A A, and the part which is indicated by the letter B. The result, that is to say, is one in which the nerve must lose electricity so long as this reversal continues; for it is a law of electricity that opposite electricities combine and neutralize each other if there be nothing to prevent them from yielding to their natural affinities. In other words, the result of the reversal must be to throw the nerve from the state of inaction into that of action; for it has been seen (¶ 11) that a nerve loses electricity when it passes from a state of inaction into that of action, and that this loss is accompanied by the development of instantaneous electrical currents of high tension, analogous to the discharges of the torpedo, in and near the nerve (¶¶ 12, 13, 14).

If, then, this be so—if the natural electrical relations of the exterior and interior of the nerve-fibres are reversed at the seat of "irritation," and if the effect of this reversal is to throw the nerve from a state of inaction into that of action so long as the reversal continues—then there is no difficulty in explaining the several phenomena which may attend upon or result from the morbid state of the nervous system which is known as "irritation." There is no difficulty in understanding how, according as its seat may be in ordinary motor nerves or ganglia, in sensory nerves or ganglia, in the cerebral hemispheres, or in the vaso-motor nerves or ganglia, the "irritation" may be attended by morbid contractions of the common muscles, by morbid sensations of various kinds, by morbid mental movements, or by morbid contractions of the blood-vessels; and how, according as its seat may have been in one or other of those parts of the nervous system which have just been mentioned, the "irritation" may end by paralysing one or other of these parts, and by producing in this manner paralysis of the ordinary muscles, or anæsthesia and conditions allied to it, or partial and general stupor and coma, or congestion and inflammation.

According to this view, then, it is easy to see how, if the vaso-motor nerves or ganglia are implicated, the "irritation" may be attended by contraction of the vessels; for contraction of the vessels is produced when these nerves are acted upon by galvanism or in any other way. And it is as easy to see how, in the end, the same "irritation" may be followed by congestion and inflammation; for it has been seen that the contraction of the vessels passes into congestion and inflammation if the said nerves or ganglia be paralysed either by the continuance of the same cause which first put them in action, or in any other way (¶¶ 63, 64). (Indeed, the experiments of Professor Claude-Bernard and Dr. Brown-Séquard upon the sympathetic in the neck appear to furnish the key to the interpretation of inflammation when it is used in this manner.) Nay, it is easy to see how this congestion or inflammation may be seated anywhere or everywhere; for there is no part of the nervous system in which the "irritation" may not begin, or into which it may not travel, and therefore there is no part of the vaso-motor system which may not be paralysed by the continuance of the "irritation"—paralysed, that is, by the continuance of the action of those instantaneous electrical currents of high tension, analogous to the discharges of the torpedo, which are developed in and near the nerve or nerve-centre which is the seat of "irritation."

According to this view, then, "irritation" is in no sense the equivalent of inflammation. According to this view, indeed, the *hot stage* of inflammation, with its congested and inflamed vessels, *must follow the cold stage*, with its rigors and pains, and with its shrunken and contracted vessels, because the hot stage is not produced until the "irritation," which produces at one and the same time and by one and the same means the rigors and pains and empty vessels of the cold stage, has by its continuance at last brought about a certain amount of paralysis in the nerves belonging specially to the vessels. And certainly there is nothing in the history of convulsion which is contradictory to this view of the relations between "irritation" and inflammation. For is it not true that epilepsy may be present in its most violent forms where it is impossible to associate the "irritation" upon which the convulsion depends with the faintest blush of inflammation in any part of the nervous system or elsewhere? And has it not just been seen that the epileptiform convulsion which may be associated with cerebral inflammation is anterior or posterior to this inflammation—is, in fact, a substitute for rigor or subsultus?

91. *The condition of the function of innervation during convulsion is one which supports the notion that the convulsion is connected with depressed and not with exalted action in the function.*

All the previous considerations lead to this conclusion, and to this conclusion only.

92. *The condition of the circulation and respiration during convulsion is one which necessitates the conclusion that convulsion is connected with depressed and not with exalted action of the nervous system.*

This conclusion is also inevitable, for it has been seen that the condition of the circulation and respiration during convulsion is incompatible with anything but the most depressed condition of vital action in the nervous system and in the system generally.

93. THE GENERAL CONCLUSION TO BE DEDUCED FROM THE CONSIDERATION OF THE CONDITION OF THE RESPIRATION AND CIRCULATION AND INNERVATION DURING CONVULSION IS THIS—THAT THE PATHOLOGY OF CONVULSION IS AS MUCH IN HARMONY WITH THE VIEW OF MUSCULAR MOTION SET FORTH IN THESE LECTURES AS IT IS OUT OF HARMONY WITH THE CURRENT VIEW ON THIS SUBJECT—THAT, IN FACT, CONVULSION IS THE SIGN OF DEPRESSED, AND NOT OF EXALTED, VITAL ACTION.

ON

ASSIMILATION AND THE INFLUENCE OF ITS DEFECTS ON THE URINE.

Being the Gulstonian Lectures of 1862, *delivered at the Royal College of Physicians, London,*

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(*Continued from p.* 493.)

I PROPOSE now to show the effect of the digestive influence of the gastric juice upon the albumen belonging to the white of the egg, the caseine of milk, and gelatine in the form of a solution of isinglass. In each case the characteristic properties of these principles are completely destroyed. Heat and nitric acid no longer throw down anything from the solution of the white of egg. Acetic acid fails to produce any curdling effect on the milk. And the solution of isinglass, although a concentrated one, has completely lost its power of gelatinizing on cooling. These nitrogenized principles, in fact, have become converted into albuminose or peptone—a body which has the property of being soluble in acid, alkaline, and neutral solutions, and of not being thrown down by heat.

Such is the purpose of gastric digestion—namely, to convert the azotized constituents of our food into a principle of which the peculiar characteristic is solubility to so marked an extent and under such varied conditions. This albuminose or peptone is also characterized by its property of diffusibility, whereby it is susceptible of readily traversing the membrane lining the

alimentary tract, and thus of entering the circulation in compliance with the physical laws of osmose. The difference of diffusibility between albumen and its digested product may be strikingly exemplified by submitting to ordinary filtration a solution of the white of egg in its original state, and after exposure to the influence of the gastric juice. A common filter affords a good index of the relative diffusibility of different liquids. A liquid that will not readily pass through the coarse pores of filtering paper is necessarily not likely to permeate more easily the very fine pores of an animal membrane. The solution of the white of egg filters only with the greatest difficulty, whilst the digested product of it passes through with facility.

Albuminose or peptone, into which the several alimentary nitrogenized principles are converted by digestion, forms the pabulum out of which the proximate nitrogenized principles of the blood are produced. Although the proximate principles of the blood are chemically the same as the proximate principles of our food, yet physiologically there is an essential difference between them; and the animal requires to construct for itself its own proximate principles. A warm controversy was formerly carried on relative to the position of the animal as compared with the plant regarding the power of constructing organic materials. It was contended that animals only destroyed, and could not build up—that organic compounds were constructed alone by the plant, and transmitted directly or indirectly to the body of the animal. Now, although the sum total of the vital operations of the plant and animal antagonize each other, yet it can no longer be justifiably asserted that the province of the animal is simply to destroy, it having been convincingly shown that proximate principles may be met with in the animal that have not been supplied from without. It is true, the animal must be provided with organic materials as food, but out of these it constructs its own proximate principles; and unless the process of construction or elaboration be properly carried out by the animal itself, the principles are not adapted for administering to the requirements of life, and, as the result, become discharged from the system with the urine as useless.

It is to Bernard (to whom the science of physiology is indebted for so much of its recent advance) that the credit is due of having first started us upon this point. He showed that although the white of the egg may be consumed in the ordinary way as food without occasioning the presence of albumen in the urine, yet that it could not be introduced directly into the circulatory system without the urine being immediately rendered albuminous. My own experience, in repetition of Bernard's experiment, enables me to testify to the accuracy of his statement. Albumen entering the circulation without having undergone the requisite assimilation is immediately discharged with the urine.

Albumen does not stand by itself in this respect, for it can be shown that the other alimentary principles likewise pass off in the same manner when placed under similar circumstances. I introduced three ounces of milk into the circulatory system of a dog. The urine before the experiment presented an ordinary behaviour, whilst that withdrawn an hour and a half afterwards became slightly opalescent on the addition of a few drops of acetic acid in the cold, much more strongly so at a temperature of 100°, and produced a flocculent precipitate floating through the liquid on boiling. On being boiled alone, a flocculent deposit occurred, and nitric acid threw down a pretty copious precipitate. There was also a strong reaction of sugar. In twenty-four hours' time the urine had resumed its natural character. In another experiment, after the introduction of six ounces of milk, the urine looked milky, and, on being examined microscopically, was found to contain a number of various-sized oil-globules (the tube through which it was withdrawn had not been oiled) like those belonging to milk. The animal died after the experiment: the lungs were solidified in places from pneumonia, and the kidneys were exceedingly congested. In adverting to this I do not mean positively to say that the pneumonia was due to the injection, as the animal was noticed after the experiment to have a thick secretion running from the nose, as though it might have been affected with the distemper.

After the introduction of 100 grains of isinglass, dissolved in two ounces and a half of water, into the circulation, the urine of a dog became so highly charged with gelatine as to form a firm solid jelly on cooling. The urine was quite clear, but threw down a precipitate with heat and nitric acid, and, therefore, also contained albumen. Soon after the injection there was intense dyspnœa. It was evident the animal could not live; and, on its life being destroyed two hours and a half after the introduction of the isinglass, the lungs were found in an exceedingly œdematous condition, a frothy serous fluid freely exuding when incised and squeezed. The lung tissue also was easily broken down under pressure.

It may thus be concluded, then, that these proximate principles are not adapted, in the state they are met with in our food, for retention in the system and administration to the requirements of the economy. Even with the serum of the blood of one animal injected into the circulatory system of another, I have noticed an escape of albumen with the urine. Into the jugular vein of a strong rabbit one ounce of the serum of sheep's blood was introduced. The blood was four days old, but the temperature at the time being low, there was no appearance of decomposition having set in. The breathing was much accelerated by the injection, and death resulted in a quarter of an hour's time. The urine contained in the bladder was distinctly albuminous, whilst that removed immediately before the experiment had been found perfectly free from albumen. In another experiment, however, two ounces of serum of fresh bullock's blood injected into the jugular vein of a dog occasioned no disturbance except vomiting, and the urine an hour and three quarters afterwards gave no reaction of albumen.

I cannot say that all the albumen ingested with the food must be converted into peptone before absorption, but it is evident from what has preceded that it must undergo some process of elaboration or assimilation before it is fitted for entering the circulation. It is possible that some albumen may be absorbed as such with fat by the lacteals; but this, in traversing the mesenteric glands, would be subjected to the influence of an assimilating process. On account of its slightly diffusible properties, it is not likely to be capable of permeating the mucous membrane of the alimentary canal and entering the portal circulation to any significant extent. Whatever might be the result if thus absorbed and made to traverse the liver in very minute quantity, experiment proves that when injected slowly into a branch of the portal vein, the liver allows it to pass without exerting the necessary change upon it to adapt it for subsequent retention in the system. Upon injecting slowly half an ounce of the white of egg diluted with an equal quantity of water into one of the mesenteric veins of a dog, the urine, which had been previously ascertained to be free from albumen, in three quarters of an hour's time was found to be loaded with this principle.

Whether the result is to be attributed to a defective digestion or a defective assimilation of the albumen, instances have been recorded which show that the ingestion of an excessive quantity of eggs, especially whilst fasting, may lead in the healthy individual to the passage of albumen with the urine. Bernard, in speaking of the effect of a quantity of sugar taken upon an empty stomach in producing saccharine urine, goes on to say: "But this phenomenon is not special to sugar. It occurs with all the substances which in like manner are ingested in considerable quantity. I remember a man who, although healthy enough, but at a period of fasting, swallowed a large number of raw eggs. Some hours afterwards it was found that his urine had become very albuminous, and it did not reacquire its normal quality until after the lapse of some time." I observe in Dr. Parkes' work on the Urine that Becquerel mentions that Barreswil passed albuminous urine for twenty-four hours after taking ten eggs, and that Hammon also noticed that he passed albumen when he was solely on egg diet.

Agreeing with these results derived from experiments conducted by experimentalists upon themselves, I have found upon the lower animals that in some instances the injection of albumen into the duodenum has led to the production of slightly albuminous urine.

The effect of injecting albumen into the subcutaneous tissue is of the same character as that produced by introducing it into the circulatory system. On account, however, of its having to reach the circulation by absorption, there is a difference as to time and degree of intensity, which accords with what it would be reasonable to expect. After the introduction of nine fluid drachms of undiluted white of egg into the subcutaneous tissue of a rabbit, the urine, in five hours' time, was slightly albuminous; on the following day, pretty strongly so; on the following day, again, slightly so; but on the following day to this the albumen had disappeared.

Looking to the facts I have just narrated, the inference presents itself, that it is not simply albumen that is required for the blood, but a *certain form* of albumen. The albumen must be in a particular state to be adapted for physiological purposes, and unless in this state it escapes with the urine as a useless material. A physiological distinction is made evident where no chemical difference is perceptible. Now, the fact of albu-

men, when arriving in its crude state in the circulatory system, immediately passing off through the kidneys is at once suggestive that some of the cases of albuminous urine encountered in the human subject might prove to be dependent on the form under which the albumen is allowed to enter the circulation. Recent investigations through the aid of the microscope have shown that there are widely different states of the kidney concerned in the production of albuminuria. It is known also that the passage of albumen may depend upon the state of the blood-vessels. The question I am now putting, however, is, whether the same morbid condition of the urine may not also in some instances be attributable to the state of the blood.

Such an idea naturally arises out of reflections allowed to flow in the direction I have been indicating. Although it had, as far as my own mind is concerned, a spontaneous origin, yet I have since learned that published evidence exists to show that the idea previously occurred to Dr. Parkes, to whom, therefore, belongs the credit of originality on the point. In one of the medical periodicals there are two clinical lectures by Dr. Parkes, on the albumen eliminated at different periods of the day in albuminuria. The first lecture appeared in April, 1852; the second in April, 1854. In the second lecture definite quantitative results are given, and the influence of food upon the elimination of albumen is shown to be exceedingly striking. In Dr. Parkes' first case the patient was labouring under chronic Bright's disease with anasarca, and had casts of tubules in the urine. The urine for an hour, fifteen hours after food, contained (leaving out decimals) fourteen grains of albumen. The urine on the same day, also for an hour, but two hours after dinner, contained thirty-four grains of albumen. In a second observation on the same patient, the albumen eliminated during an hour, whilst fasting, amounted to eleven grains, against thirty grains for a similar period shortly after food. In his second case the Bright's disease was attended with complications, and the influence of food, although decided, was less strikingly exemplified. His third case was one, not of Bright's disease, but of valvular disease of the heart, with slightly albuminous urine. The results here were reversed. In two separate observations upon the patient more albumen was passed whilst fasting than shortly after food, but the quantity did not reach higher than a grain, with decimals, for the hour in either case.

I have conducted observations on two cases of albuminuria under my care in Guy's Hospital. I took the urine for three hours before breakfast and three hours afterwards upon three occasions; and six hours before and six hours afterwards (a second meal in this case being given three hours after the first) also upon three occasions. In every instance the percentage of albumen was the highest after food, although it was not so with the gross amount, the urine passed during digestion being smaller in quantity than that during fasting. But here are the actual results that were obtained:—

Albumen passed before and after food in two cases of albuminuria in Stephen ward, Guy's Hospital, 1862.

—	Date.	Time.	Quantity of urine in oz.	Albumen per oz.	Diet.
CASE 1	March 4	5 to 9 A.M.	7·5	5·9 grs.	Breakfast of bread and butter, 3 eggs, and 1 pint of cocoa at 9 A.M.
	" "	9 to 11 A.M.	3·5	9·4 "	
	" 5	5 to 9 A.M.	11·75	3·7 "	
	" "	9 to 11 A.M.	6·75	9·9 "	
	" 8	5 to 9 A.M.	8·5	6·2 "	
	" "	9 to 11 A.M.	5	9·7 "	
	" 9	12 to 6 A.M.	22	6·3 "	Breakfast (as above) at 6 A.M., and food again at 9 A.M.
	" "	6 A.M. to noon	13	8·6 "	
	" 10	12 to 6 A.M.	15	5·4 "	
	" "	6 A.M. to noon	15	8·3 "	
CASE 2	" 9	12 to 6 A.M.	20·5	4·1 "	Breakfast (as above) at 6 A.M., and food again at 9 A.M.
	" "	6 A.M. to noon	17·5	5·7 "	

Suggestions have been offered by Dr. Parkes to account for the connexion shown by his experiments to exist in some cases of albuminous urine between the elimination of albumen and the ingestion of food, although it is admitted by him that the facts already known are too few in number to lead him to feel anxious to answer the question definitely at present. Now, from what I have noticed during some recent experiments that I have been making, it has seemed to me that a clue might possibly be furnished towards a solution of the problem. I cannot say positively, however, that such will prove to be the case, but I will mention the facts observed, and allow them to speak for themselves.

It is always desirable, in starting upon an inquiry, to have the main points of the case put as clearly as possible before the eye. In this case, I take it, there is sufficient evidence to enable us reasonably to conclude that, physiologically speaking, albumen must be regarded as existing in different states to account for the escape of one form during its circulation through the kidney, and not another. Admitting such, the question immediately presents itself—Why should one form of albumen thus escape from the system, and not another? Can it be accounted for by reference to physical laws, or must we ascribe it to some of the more inscrutable operations connected with life?

The fact has long been known, that, whilst some materials traverse animal membranes with the utmost facility, others encounter the utmost resistance. Professor Graham has recently attracted special attention to this subject by his important communication to the Royal Society on "Dialysis, or Liquid Diffusion applied to Analysis." He divides bodies into colloids and crystalloids, the former being comparatively fixed as regards diffusion, the latter enjoying the opposite property. Albumen is a colloid, and, according to Professor Graham, is about 2¼ times less dialysable than gum, also a colloid—and 1000 times less so than chloride of sodium, a body belonging to the opposite class. It cannot be doubted, I think, that the principle of diffusion plays a most important part in the economy of life, and determines many of the phenomena that are observed. The albumen of the blood is prevented from escaping like urea, during its circulation through the kidney, because of the feebleness of its diffusible properties. Now it occurred to me to see if albumen possessed, according to its form, a difference in degree of diffusibility—such that might account for its escape with the urine in some cases of albuminuria.

On submitting some specimens of albuminous urine to dialysis, I encountered one where the albumen passed in considerable quantity. The urine was derived from a patient affected with phthisis, who never had experienced any symptom of dropsy. It was highly charged with albumen, and on being submitted to dialysis, using vegetable parchment as a septum, the albumen passed to such an extent, that the diffusate after twenty-four hours (distilled water had been placed on the other side of the membrane) gave a pretty copious precipitate with heat and nitric acid, as also with the yellow prussiate of potash and acetic acid test. It was noticed, as happens with some specimens of albuminous urine, that the precipitate produced in the diffusate by the addition of a small quantity of nitric acid was redissolved on agitation. A considerable excess of nitric acid was required to throw down a permanent precipitate. The same result was obtained upon several occasions, and no idea could be entertained as to any imperfection in the dialyser, because the same one was used for blood, and other specimens of albuminous urine, but albumen in neither case passed in twenty-four hours to any sensible extent. This patient left the hospital, and was readmitted six months later almost in a moribund state. His urine was still highly albuminous, but, curiously enough, now gave scarcely any positive result on being submitted to diffusion. Dialysed for forty-eight hours with a septum of vegetable parchment, the diffusate only yielded the slightest turbidity on being tested for albumen. Although I have met with differences in other cases, still with the specimens of urine I have as yet examined, I have never encountered one where the albumen diffused to an extent at all comparable to that in the case I have just mentioned.

When vegetable parchment is used as a dialyser the albumen of blood and that of the white of the egg only diffuse to a most feeble extent; but with pericardium—which forms a better animal membrane than bladder for these experiments—the diffusate becomes more or less sensibly impregnated with albumen. I have tried, comparatively, the diffusion of white of egg, serum, and defibrinated blood through bullock's pericardium. The diffusate with the first gave a fair amount of coagulation; with the second, a slight, and with the third, which was of a strongish red colour, from the passage of the colouring matter of the blood, a considerable one.

But here are some experiments where the results can be represented by figures. Funnels constructed for the purpose, and presenting an opening of the same extent in each—namely, about two inches in diameter,—were used as dialysers. In each case half a fluid ounce of the liquid to be examined was placed in the funnel, and this was immersed in two ounces of distilled water. At the end of the time allotted, the fluids were collected and placed in capsules, evaporated to dryness, and then exposed to a temperature of 230°, to render the albumen completely insoluble. The dried mass was afterwards washed in the capsule to remove the salines, so that no filtration was required during the process.

With sheep's pericardium, and after twenty-four hours' diffusion, the diffusate from the white of egg contained 2·8 grains of albumen, the contents of the funnel yielding 26·4 grains. Under similar circumstances, the serum of recently-drawn sheep's blood gave 1·3 grains in the diffusate, and 16·9 grains were obtained from the funnel.

With bullock's pericardium, and after three days' diffusion, the white of egg furnished 3·9 grains of albumen in the diffusate, 22·2 grains in the funnel; the serum of recently-drawn bullock's blood, 1·1 grain in the diffusate, 29·1 in the funnel; and the serum and corpuscles (the fibrin having been removed by whipping) of the same blood, 4·3 grains in the diffusate, and 41·3 grains in the funnel. In the latter instance the diffusate was of a strong red colour, but at the same time perfectly bright and clear.

Although there was a marked difference, especially in the latter series of results, in the amount of albumen diffused, yet I do not by any means advance what has been noticed as sufficiently decided at present to afford the satisfaction required in reference to the important question that has been raised. Still the experiments may be taken as showing that there is a difference in the diffusibility of different forms of albumen. There is sufficient in the results to induce me to purpose repeating the experiments, using much larger quantities, and diffusing through a much greater extent of surface, and at the same time seeing that all the albumen employed is accounted for in the diffusate and the contents of the funnel, or that there is no source of fallacy in the mode of procedure adopted. Looking at the position of the kidney, I cannot help regarding it mainly in the light of a dialysing apparatus upon an exceedingly extensive scale, and I search amongst physical laws to account for the phenomena observed.

ON A CASE OF MORAL INSANITY IN A CHILD.

BY JOHN MILLAR, L.R.C.P. EDIN.,
MEDICAL SUPERINTENDENT OF BETHNAL HOUSE ASYLUM.

IN November, 1861, I was requested by Dr. Welch, of the Hackney-road, to give my opinion in the following case:—

G. W. H——, aged six, a well-grown, healthy, intelligent-looking boy; fair complexion; head large and broad across the ears; full blue eyes; expression heavy and sullen. He was born in September, 1855, and was considered a fine child. His mother, being in delicate health from consumption, was unable to suckle him. He was therefore brought up by hand, and fed chiefly on milk and tops-and-bottoms. Upon this he appeared to thrive. When, however, he began to walk, he showed symptoms of defective nutrition by his legs becoming bandy. This under proper treatment quite disappeared. In other respects he grew a healthy child. At a very early period he exhibited so much violence of temper when he could not get his own way, that it generally ended in a kind of convulsive seizure, one of which was so severe, when about eighteen months old, that his father for some minutes thought him dead. When three years old his mother died, and he fell ill with wasting and cough, for which he was under treatment at the London Hospital for about seven months, and there the violence of his temper was such as to attract the attention of the physician. His health became completely established after an attack of scald head. He always evinced a dislike to being petted or fondled, any attempt of the kind on the part of his little brother or sister being repulsed with a kick, a slap, or a blow on the face, so severe as generally to bring blood. If his father attempts to caress him, he will call him a fool, and resist. Toys, sweets, amusements, and such things as usually afford gratification to children, do not give him the slightest pleasure. Six months after his mother's death, his father married again; and about this time he began to use vile language, calling his stepmother, amongst other epithets, a b—y stinking b—h, and is often grossly indecent to her. He swears and tells most audacious lies, occasionally screams at the top of his voice if he wants anything, or to make the neighbours believe he is being beaten. Soon after his half-sister was born, and whilst lying in the cradle, he took a light from the fire, and threw it on the bed and burnt the coverlid. On another occasion he took a jug full of water from the boiler, and threw it over her; fortunately it had just been filled up, otherwise she must have been severely scalded. He makes away with or destroys everything he can lay his hands on; his bed he rips up and scatters its contents about; the sheets and blankets he tears to shreds; his clothing he picks to pieces and burns; he pokes the fire with his boots; earthenware, glass, and ornaments he breaks; metal spoons he twists and renders useless. He got hold of his father's watch one day, and, after breaking the glass and the hands of it, put it into the oven, and when he felt sure it was well baked he told where it was and threatened to serve his mother's the same. A purse he emptied the contents of down the sink and restored it to its place; the two lower rows of glass in the window of the living-room cannot be kept whole, so paper is used. He is exceedingly quick and cunning in his movements, so much so that his father has never been able to detect him in any act of destruction. In sight he walks slowly and without animation; if pushed to make him go faster, he falls like a log. His appetite is at times voracious, showing a partiality for animal food; but he will not eat in the presence of his father, no matter how long he may have been without. He will steal anything eatable, even if he has said he did not like it or refused it the moment before. At times he will show an utter disregard to taste, for he will eat salt like sugar, munch fish bones and pins, and even swallow them. His habits are now very dirty. He began by occasionally passing his evacuations in bed, or as he walked about; now, during the day, he always selects a particular spot on the floor, for which he will wait with great patience until an opportunity offers; and so bent is he upon making a mess that he has produced prolapsus ani in his efforts to dirty his bed after it has been changed. He has been sent to various schools, from which he has always been dismissed in consequence of his assaults upon other children both older and younger than himself, as well as on account of his obstinacy, refusing to learn or speak excepting when he thinks proper. In the presence of strangers he will sometimes conduct himself like a lively and intelligent boy. His father has endeavoured to correct him by punishing him in various ways; but he disregards everything he has done to him. Although he dislikes the rod, the fear of it has never for a moment deterred him from repeating any irregularity. A cold bath has been tried to check his dirty habits; but he will walk into it with the greatest coolness. Neither punishment nor kindness has ever had any effect upon him. He has never expressed regret or sorrow for what he has done; and he appears to be quite without love or affection. He used slyly to pinch and strike his little brother when lying in the cradle dying. All he wants, he says, is a new father and mother and house. His memory is good, and he generally keeps his word if he has threatened to do anything.

Many of the above facts were detailed to me in his presence, to the general correctness of which he readily assented. He knew perfectly well that they were wrong, and said he did not want to be a good boy, and, with a grin, told me in plain language that he expected to go to that place where he had been taught that wicked boys were sent to; and although the horrors of it had been fully explained, he said he did not care. His tongue was shiny in patches as if recently blistered, and his circulation languid; his bowels acted daily, the evacuations being copious and very offensive; the abdomen was at times tumid, and during sleep he groaned distressingly.

The maternal grandfather of the child was a very eccentric, intemperate, and passionate man, and the child is said to resemble him much. The eldest children of two of his mother's three brothers are like the child, and the third brother spent some time in a reformatory.

Whilst talking to his father after the boy had left the room, on my first visit, his mother went to look after him, as he cannot be trusted out of sight; she found that he had taken his boot off and thrust it into the fire.

I had little difficulty in coming to the conclusion that this was a case of moral insanity, for conduct so opposed to all that is natural in a child I could not suppose due merely to perversity. From the appearance of his tongue and languid circulation, I ordered some alterative aperient twice a week, and some tonic mixture with tincture of iron twice a day. His evacuations became more natural, and he liked the tonic; but, as he did not improve in character, his father determined to try him with strangers in the country. In several places he was sent to he conducted himself very well for awhile; but as there was no real improvement, his father then tried to get him into the County Asylum. Not being actually in indigent circumstances, however, obstacles were placed in the way; and it was only after Dr. Welch, the parochial officer, reported the

case in his quarterly return of lunatics as not under proper care and control, the boy having recently attempted to set fire to the house and strangle himself, and the parish taking no notice of the case, that the Commissioners in Lunacy, through their solicitor, took proceedings under the 68th section of the 16th and 17th Vict., c. 97; and I was directed by the police magistrate to examine and report upon the case, which I did in nearly the following terms:—

"In pursuance of your order dated Feb. 6th, 1863, I on the 7th visited G. W. H——, the child referred to; and certify that he is a person of unsound mind, and not under proper care and control, but not ill-treated nor neglected by his father. I found him lying on a mattress with the tattered remains of a sheet on, and covered with shreds of a blanket, the remains of a mattress and blanket torn to pieces lying about the bed, and the wall smeared with excrement. On entering the room, I was saluted with—'I don't want to see you, you fool! You are a b—y fool!' He admitted that he had torn his sheet and blanket and smeared the wall for no other reason than 'he chose to,' and he bit his arm with great force to show me how he had torn the things, and said he sometimes tasted his excrement because it was nice; that he would not take any food from his father, not because he had beaten him (for that he did not care), nor because he disliked him, but because he did not give him enough. He did not care for the cold, because he could easily warm himself by tying a string round his neck. To many of my questions he told me to 'kiss or ax his ——.' His little sister happened to come into the room, when he said, 'I'll smash that little bitch!' When I attempted to feel his pulse, he tried to get hold of my hand to bite it, and spat at me, and told me if I did not be off he would dab some faces in my mouth. His parents are not in a condition to provide that care and treatment which his case requires. The child has been under my observation since November, 1861; and the above is a fair example of his conduct at various times in my presence. I learn from his father that he has recently attempted to set fire to the house and strangle himself; that he uses the foulest language to his parents, and steals and destroys everything he can lay his hands on, so that he cannot be trusted a moment out of their sight."

I afterwards learned that he was sent to Colney Hatch, from which he was discharged as cured in a fortnight, for the reasons assigned in the following report of its medical officer to the visitors, as printed in a local paper, a copy of which had been sent to the guardians of the parish:—

"Middlesex County Lunatic Asylum, Colney Hatch, March 13th, 1863.

"Gentlemen,—On bringing before you for discharge, on the 3rd instant, a boy of the name of George William H——, from Bethnal-green parish, you naturally enough expressed surprise at seeing one of such tender age (seven years), and you asked for my opinion in writing as to the propriety of sending such a case to a lunatic asylum.

"The facts of my having returned this boy to the Commissioners in Lunacy as 'not insane,' and discharged him seventeen days after admission, alone evidenced my estimate of his condition and of his unfitness for being here.

"During the short period of H——'s residence at Colney Hatch no single incident occurred to sustain the statements made in his certificate of admission. He was not 'personally filthy,' nor was he 'very filthy, obstinate, and vicious.' On the contrary, he was singularly clean, amiable, and well-disposed, attending regularly to the calls of nature. He had prolapsus of the lower bowel on admission, which accounted for the 'faecal smell' alluded to by the certifying medical man. This prolapsus was immediately reduced, and the bowels kept regular by an aperient electuary.

"I have no hesitation in stating that I do not think anything could justify the sending such a case as that of George William H—— to a lunatic asylum.

"I have the honour to be, gentlemen, your faithful servant,

"To the Visiting Committee of the Colney Hatch Asylum." "EDGAR SHEPPARD, M.D.

After what I have above detailed, it is scarcely necessary for me to add that the child continues much the same as when sent to the asylum, and took an early opportunity of asking his father if he would like to suck plums from his rectum.

The profession will accept the concluding paragraph of Dr. Sheppard's report as having been made without any communication with the father of the child; with Dr. Welch, under whose observation the boy has been for some considerable time, and upon whose certificate, I presume, he was sent to Colney Hatch; or with myself.

Bethnal House, April, 1863.

A Mirror

OF THE PRACTICE OF

MEDICINE AND SURGERY

IN THE

HOSPITALS OF LONDON.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum et dissectionum historias, tam aliorum proprias, collectas habere et inter se comparare.—MORGAGNI. *De Sed. et Caus. Morb.*, lib. 14. Prooemium.

ROYAL LONDON OPHTHALMIC HOSPITAL.

ACUTE GLAUCOMA TREATED BY IRIDECTOMY; GOOD RESULT.

(Under the care of Mr. BOWMAN.)

THE case of acute glaucoma we have to record is one of those remarkable instances which occasionally come under treatment at the hospital, and serve to prove indubitably the good effects of iridectomy, and to show that this operation when properly performed is capable, not only of completely arresting the progress of a disease which has defied the skill of so many, but also of restoring to the patient an amount of sight which previous to the introduction of this operation was seldom even hoped for.

The history is very similar to a case we recorded in our number for Nov. 2nd, 1862, under the care of Mr. Lawson, at the same hospital, where one eye had been previously lost by the disease, and the other had been similarly attacked; but coming under his treatment within twenty-four hours after the acute symptoms began, iridectomy was performed, and sufficient sight regained for the patient to be able to read No. 2 or pearl type.

In the patient now under our notice, the left eye had been suddenly seized with *glaucoma fulminans*—a name lately given by Von Graefe to rare cases of exceedingly intense glaucoma, under which the sight is lost within a few hours, even before the signs of acute inflammation are strongly developed. (See the last number of the *Archiv. f. Ophthalmologie.*) Blindness rapidly supervened, with acute inflammation, finally resulting in disorganization of the eye. For this tense, painful, and blind eye she was admitted into the hospital; but failing to gain relief from treatment, the globe was removed. It was whilst she was in the hospital that the right eye became attacked with glaucoma; but, rapid as was the progress of the case, the disease was arrested by iridectomy, and she is now able, with a 20-inch-focus convex glass, to read No. 2 easily, whilst previous to the operation she could not tell letters of No. 20, or eight-line Roman type, or discern the features of her friends.

There is another point of interest in this case; for, differing from most others, there is a good assignable cause for the first commencement of the disease, and probably in this patient it is the true one. Long watching, great exhaustion, and a sudden fright she believes produced the disease; and the effect seems so rapidly to have followed the assumed cause that one cannot disregard the apparent connexion between the two.

History.—Mary W——, aged seventy-three, a monthly nurse; always had good health, and up to Christmas last had never suffered any inconvenience or annoyance whatever from her eyes. One night about that time, whilst nursing a lady, and after two or three nights' watching, during which she had little or no sleep, she was, whilst half dozing in a chair, aroused with fright by a noise produced by the breaking of the window-rope, causing her to think that some one had entered the room. This occurred at two o'clock A.M. An hour or so after this, she had violent pain in the left eye and in the head, accompanied by nausea, but no vomiting. The pain was so severe that she remembers no other symptom. At nine o'clock in the morning she was quite blind with that eye, and unable, she says, to distinguish light from darkness. She did not apply for any advice, nor undergo any treatment, although the eye continued exquisitely painful, and from her account seems to have become acutely inflamed. Compelled to leave her situation, and wanting almost the common necessaries of life, she came to the hospital, and was admitted on the 6th February.

State of the left eye on admission.—The whole globe acutely inflamed; tension extreme (T 3); the cornea rough and semi-

opaque, and the humours within, as far as could be seen, quite dull. The eye was intolerably painful; indeed, it was on account of the unbearable pain, as she described it, that she sought for relief, and was willing to undergo any treatment to gain it. She had no perception of light.

As the eye was useless, very painful, and clearly undermining the patient's health, Mr. Bowman removed it. After the operation all pain ceased, and for a few days she progressed most favourably. She was again able to sleep and to take her food, and expressed herself as feeling quite well.

On Feb. 12th, six days after the excision of the eye, she was at two o'clock in the afternoon seized with pain in the right eye, and she saw, she says, beautiful colours like a peacock's tail in the sun. The pain in the eye increased, and so severe was it in the top of her head that she felt she could hardly rest on her pillow. She did not vomit, although she had a great feeling of sickness. In the evening she saw around the candle in the ward a large rainbow, and the light of the candle appeared red.

On the following morning (the 13th) she was seen by Mr. Bowman. She had passed a very restless night, and the pain in the eye and head continued. The tension of the globe was increased (T 3). She was unable to read letters of No. 20 of Jaeger's test-types, or even to discern features, and could only just manage to count fingers at the distance of six inches. Under these circumstances Mr. Bowman at once performed iridectomy, removing a large portion of iris in the upward direction. Soon after the operation she began to experience relief. She passed a good night without opiates, and in the morning there was a decided improvement in the sight. She continued to progress most favourably, the tension of the eye became permanently normal (T n), and all pain in the eye and head completely left her. In about a fortnight she was discharged from the hospital to attend as an out-patient.

Her sight has steadily improved since the operation, and the report (May 4th) states that with a 20-inch-focus convex glass she is able to read No. 2 or pearl type. The convex glass she is obliged to use for reading is not so strong as is ordinarily required at the advanced age of this patient.

KING'S COLLEGE HOSPITAL.

PROLAPSUS OF THE RECTUM TREATED BY THE HÆMORRHOIDAL CLAMP.

(Under the care of Mr. HENRY SMITH.)

THE following case serves to illustrate in a remarkable manner the value of the treatment of hæmorrhoids and prolapsus of the rectum adopted by Mr. Smith, for the patient was in such a state that it would have been out of the question to use the ligature, and yet the man was suffering so much from the local complaint that some treatment was called for.

J. B——, aged forty-nine, had been under the care of Dr. Garrod for two months with severe pyrosis and diarrhœa, attended with symptoms of great debility; and there was an anxious, sallow look about his face, as though some organic disease existed. Under treatment, however, he improved, and before he was transferred to Mr. Smith the pyrosis and diarrhœa had ceased; but he remained very feeble, and was much troubled by a large prolapsus which had existed for eighteen months. On examination, there was found to be a protrusion of the entire circumference of the rectum, forming three large segments which were not returnable.

On April 11th the operation was performed. Each segment of the protruded membrane was separately secured by the screw clamp, and the free portions were cut away by the scissors. The actual cautery was then applied very freely to the cut surfaces, as the parts were excessively vascular. This being done, the clamps were successively removed, and the bleeding was found to be arrested except at one spot where an artery spouted out; and Mr. Smith, instead of compressing it and applying the actual cautery again, preferred placing a ligature upon it.

This man had not a single bad symptom; there was no subsequent bleeding, and the bowels were opened by injection on the fourth day, without bleeding or much pain. The parts, which were a good deal swollen from the operation, gradually contracted under the use of alum wash. The sloughs separated from the mucous membrane in a week, and a fortnight after the operation the man was discharged well.

In some observations which Mr. Smith made on this case, he stated that neither would he nor any other surgeon have dared to operate upon this patient with the ligature, and nitric acid alone would have been useless in so severe a case; but he had such confidence in the safety and efficiency of the treatment by the clamp that he did not hesitate for a moment to adopt it here, although there was good reason to believe the man was labouring under some organic disease. The only possible danger a patient could incur was from hæmorrhage; but this can be avoided with ordinary care and by the use of the screw clamp, and more especially by the employment of the actual cautery, when the parts are so vascular as was the case here. It is true that at one point the bleeding was not commanded after the use of the cautery, but if he had chosen he could have arrested it by a further application of a differently-shaped cautery; but as the operation had lasted a long time, the man being feeble, and not under the influence of chloroform, he preferred placing a ligature around the bleeding point at once. Next to the great safety of this plan of treatment was the short time necessary for the cure. In most cases the patients were up and about in three or four days.

WESTMINSTER HOSPITAL.

TWO CASES OF RADICAL CURE OF INGUINAL HERNIA BY WOOD'S OPERATION.

(Under the care of Mr. CHRISTOPHER HEATH.)

THE operation for the cure of protrusions in the inguinal region with which Mr. Wood's name is connected may be considered to have its place among the ordinary operations of surgery in the present day, more especially since the Jacksonian prize was awarded to the author of the proceeding. Mr. Wood has himself modified the operation in various ways (the full particulars of which he has laid before the profession in his recently published volume upon the subject); and the method adopted in the following cases by Mr. Heath is one which seems to have afforded most satisfactory results, and at the same time to be a less formidable proceeding than that which is complicated by a considerable external incision, as is the case when performed for the cure of large herniæ. We have had an opportunity of seeing it done by Mr. Wood himself on several occasions, and quite lately on a young girl who was suffering from an inguinal hernia, that being the third female patient on whom Mr. Wood had performed it.

Mr. Heath's cases are interesting as illustrating the social benefits derivable from an operation of this character, which enables individuals debarred from active employment, by no fault of their own, to resume their duties after a few weeks, and with little if any suffering. This alone would furnish a sufficient argument in favour of the operation were we to ignore altogether the fatal consequences which so frequently attend neglected ruptures.

For the notes of the cases we are indebted to Mr. Beadles, the house-surgeon.

William T——, admitted into Luke ward Dec. 2nd, 1862. He was sent to Mr. Heath by Dr. Johnstone, of Greenwich Hospital, who had been obliged to refuse him admission to the Naval School on account of a small protrusion through the right inguinal canal. The boy is well grown, and had not been aware of any disorder until examined. When he coughs there is a small protrusion through the external ring, but no intestine descends, the external ring being only large enough to allow the point of the finger to enter. Both testicles are in the scrotum.

Taking the circumstances of the case into consideration, and especially the fact that unless rapidly cured the boy would be over the age for admission to the school, Mr. Heath resolved to adopt the proceeding recommended by Mr. Wood for the treatment of these cases. On Dec. 9th, the boy being under the influence of chloroform, the operation was performed in the following manner:—The finger being introduced into the external ring, and as far as possible beneath the edge of the conjoined tendon, one of Mr. Wood's needles, made for the purpose, was introduced through the skin over the point of the finger, and pushed through the conjoined tendon, being then guided by the finger through the internal pillar of the external ring before it pierced the skin of the scrotum. Another needle, then introduced through this lower puncture and external ring, was pushed through Poupart's ligament, and out at the upper puncture by the side of the first needle. The needles, having a sort of eye twisted in them, were thus able to be locked firmly together, so as to draw the walls of the inguinal canal and the pillars of the ring together. The needles were fastened down with plaster and a pad and bandage.

After the operation the boy had no symptoms of any kind, the bowels were regularly open, he had no pain, and the needles seemed to give no inconvenience.

Dec. 23rd.—The needles were removed (a fortnight after their introduction), when the skin had ulcerated to a very trifling extent at the upper puncture. After removal it was found there was considerable thickening in the canal, and that no protrusion took place on coughing.

26th.—The skin has quite healed; the groin is quite firm; no bandage applied.

Jan. 3rd, 1863.—There being no impulse whatever on coughing, and the induration in the ring being considerable, the boy was sent home for a month, at the end of which time he is to return, that it may be seen whether the cure is permanent.

26th.—Called to show himself on his way to Greenwich. The induration at the ring has disappeared, but there is no protrusion whatever on coughing, and the cure may safely be pronounced permanent.

The boy was admitted to the Naval School in due course, and remains perfectly sound to the present time.

William J——, aged twenty-three, was sent to Mr. Heath on the 7th of February, 1863, by Dr. Edney, R.N., of H.M.'s ship *Alecto*, who had been obliged to refuse him admission to the navy on account of a small protrusion in the right inguinal region. The patient was not aware of anything being the matter with him until examined. There was a small protrusion through the external ring when he coughed; but the intestine did not descend into the scrotum.

Feb. 10th.—Mr. Heath operated by means of Mr. Wood's needles, introducing one from above through the conjoined tendon and internal pillar, and the other from below through the external pillar of the ring. The needles were twisted together, and fastened with plaster and a bandage.

11th.—The patient is quite easy when undisturbed; but the slightest pressure over the ring gives considerable pain.

15th.—The bowels opened with a turpentine enema for the first time.

17th.—The pins removed. The skin has ulcerated to the extent of a shilling-piece at the lower, and of a sixpence at the upper opening.

24th.—The parts about the ring appear quite consolidated, and there is no pain in the region of the groin. The patient is to get up with a bandage on the groin.

March 3rd.—The wounds have nearly healed. No impulse whatever on coughing, nor any pain in the groin. The man was discharged cured.

The patient called to show himself a week later, when the groin was found to be quite sound.

GUY'S HOSPITAL.

CASE OF EPITHELIOMA OF THE MUCOUS MEMBRANE OF THE MOUTH.

(Under the care of Mr. BIRKETT.)

THE notes of the following case have been furnished by Mr. Thos. Robt. Nason:—

William S——, aged sixty-one, a gardener, residing at Clapham, applied for admission on Feb. 10th, under the following circumstances. He states that about fifteen months since he felt a small tumour about the size of a pea on the right side of the roof of the mouth opposite the second canine tooth; this has gradually spread and involved a part of the mouth, taking on the character of epithelioma. He has been under no treatment, but, finding that it gradually got worse, he applied at the hospital.

The patient is a tall, thin, pale-faced man, but with healthy appearance. On examination, the growth, evidently epithelioma, was found completely filling the arch of the palate. After a week's rest to recruit his general health and accustom him to the confinement, on Feb. 17th Mr. Birkett, after having removed four or five teeth, under the influence of chloroform, carefully dissected it off *en masse* very neatly, and with very little hæmorrhage. He has gone on well without a single bad symptom. On the 18th he passed a quiet night. On the 19th and 20th he still continued well; and on the 21st, there being no further necessity for having him under constant surveillance, he left the hospital, comparatively speaking, cured. He was to remain for some time, however, under observation.

The great points to be noticed in this case are, that the operation about the mouth was carried on under chloroform, and that there was very slight hæmorrhage attending it.

Medical Societies.

ROYAL MEDICAL & CHIRURGICAL SOCIETY.

TUESDAY, MAY 12TH, 1863.

MR. PARTRIDGE, PRESIDENT.

ON THE PHYSIOLOGICAL ANATOMY OF THE LUNGS.

BY J. NEWTON HEALE, M.D.,

PHYSICIAN TO THE HANTS COUNTY HOSPITAL, AND FORMERLY PHYSICIAN TO THE ROYAL FREE HOSPITAL.

THE following points in connexion with the physiological anatomy of the lungs have been elicited as the result of investigations made by the author:—

First. As regards the pleura.

Certain longitudinal channels are to be found in it. These are pervious to air, and are connected with the minutest air-passages in the substance of the lungs by means of tubular passages in the subpleural cellular tissue. They are surrounded by a vascular plexus, derived from the pulmonary system of bloodvessels.

Second. As relates to the manner in which the air is distributed throughout the lungs.

A remarkable difference is to be noticed in what is ordinarily called the bifurcation of the trachea as it exists in the human subject contrasted with that of other mammalia. In the latter a large trunk is given off from the windpipe before it reaches the spot which is usually called its bifurcation. This trunk goes to the upper part of the right lung. The left bronchus is therefore, in those animals, the second alternate branch which proceeds from the main air-pipe. Each bronchial tube, instead of splitting up equally into lesser tubes, and thereby forming a dichotomous or a trichotomous division, passes towards the margins of the lobes in a continuous direction, though diminishing in size. It gives off its branches in an alternate manner, and each of the subordinate tubes pursues a similar course. When they have arrived at a certain degree of diminution, a set of membranous tubes, differing in some respects from the bronchial tubes, and also from the air-cells, but being intermediate in character between the two, are sent off from the terminal bronchial tubes. To these membranous tubes the author attaches the name of pedicles. The true pulmonary tissue is quite distinct in its anatomical peculiarities from those of the bronchial tubes, however small these may be. It does not at all resemble them, and they cannot be mistaken the one for the other. The ultimate parenchyma of the lungs is made up of little bodies, to which the author attaches the name of "leaflets." The pedicles connect the terminal bronchial tubes with the leaflets; and many pedicles from different terminal tubes enter each leaflet. This peculiarity in the leaflets causes a very minute anastomosis to take place between the different terminal bronchial tubes, which could not occur if the ordinary description were correct.

Third. The author does not profess to have contributed any fresh facts relating to the lymphatics or to the nerves as to their purely anatomical characters.

Fourth. With reference to the characters and functions of the so-called bronchial arteries.

The author prefers to give the name of sustinent arteries and veins to the bloodvessels usually denominated bronchial. He considers that the latter word implies that they have some peculiar relation to the bronchial tubes, and more especially to the bronchial membrane, which is a destination usually attributed to them. They have in consequence been supposed to be the vessels peculiarly engaged in the pathological condition known as bronchitis. The author's investigations show that every sort of vascular action throughout every part of the lungs, by which any damage to its tissue is remedied, is accomplished through the sustinent vessels exclusively, although the peculiar plexus by which the whole of the mucous surface is covered, and by which the bronchial mucus is supplied, is not in any degree contributed by the so-called bronchial arteries. Physiologically and anatomically, the sustinent and pulmonary systems are quite distinct. While the duty of repairing the tissue of every part of the lungs devolves upon the sustinent vessels, that of bringing the venous blood furnished by the right side of the heart into contact with the air, and of accomplishing the physiological purposes which are aimed at by that arrangement, is entrusted solely to the pulmonary vessels. The purpose for which the vascular plexus is spread out in the mucous membrane is entirely connected

with the atmospheric influences, and the large surface which that membrane affords for the furtherance of that object is thus turned to account, and the plexus itself is consequently in exclusive relation with the pulmonary system of bloodvessels. Modern authors, with the exception of Dr. Harrison, of Dublin, concur in believing that there is some kind of anastomosis between the minute branches of the pulmonary and the sustinent vessels. That gentleman, with great truthfulness and candour, acknowledges that he has not been able to satisfy himself that the presumed anastomosis has not been the result of the rupture of one or both sets of vessels in the act of injecting them.

The author of this paper has found that the vasa vasorum of the pulmonary vessels are supplied entirely by the sustinent arteries; and that when the latter have been fully distended, and some degree of violence has afterwards been used, the minute capillaries in connexion with the sustinent arteries which are spread over the interior of the walls of the larger pulmonary vessels have sometimes been made to burst, and a false communication into the canal of one of the pulmonary vessels has thus been made. A channel for the injection having been once established by an accident of this nature, it becomes gradually enlarged in proportion as the injection is afterwards made to flow through the rent, and an unlimited quantity of injection may then be made to flow through the artificial passage. The pulmonary and sustinent vessels cannot be made to communicate with one another by any other means than this.

It has been a disputed point as to whether the so-called bronchial arteries are furnished with veins. It is, however, easily shown that sustinent veins accompany the bronchial tubes, returning the residual blood supplied by the sustinent arteries to the internal parts of the lungs; and that other sustinent veins ramify in the subpleural tissue, which collect the blood from the exterior of those organs.

Attention is called to the fact that the sustinent veins are furnished with valves, and with cross branches of anastomosis. These last facts are of some importance, not with regard to the lungs only, but also with reference to the bloodvessels, which discharge in other viscera a function similar to that of the sustinent arteries.

Fifth. As relates to the distribution of the pulmonary vessels.

Modern authors describe the *pulmonary arteries* as accompanying the bronchial tubes; as continuing to divide again and again, becoming more numerous than the tubes; as giving off branches of supply to the various tissues; as anastomosing with the so-called bronchial arteries; and their residue as being ultimately distributed to the air-cells. The author considers this account to be far from accurate. He finds that the pulmonary arteries never give off branches of supply to *any* tissue. They never form any anastomosis either among themselves or with any other bloodvessel. They do not become more numerous than the bronchial tubes, since each of these is accompanied by one, and never more than one, pulmonary artery, which pursues in relation to it a perfectly definite and invariable course; and the final distribution of every portion of the pulmonary artery, down to the minutest fragment, is precisely and entirely alike. The whole of it is split up so as to form the remarkable anastomosing plexus in the leaflets. The pulmonary *veins* commence in the interior of the leaflets by *tufts* of capillaries. The veins formed from these commencements are placed, in the first instance, at some distance from the bronchial tubes; but as they increase in size they come into contact with them. A remarkably vascular plexus, composed exclusively of pulmonary vessels, occupies the whole surface of the mucous membrane. This is derived as an offshoot from the plexus in the leaflets, and is reinforced in the larger tubes by bloodvessels furnished from the leaflets which cling to the tubes externally, and send perforating branches to the plexus in the membrane. Some *ramuscculi* are also placed externally to the tubes. They collect the blood from the plexus in the membrane, and convey it to the larger pulmonary veins, the formation of which has been described above. There are, therefore, in the first instance, two distinct sets of minute pulmonary veins. One of these, after leaving the leaflets, makes its way at once in a direction towards the left auricle, without undergoing any further exposure to the air. The other is spread over the mucous membrane, and derives the benefit of the atmospheric influence which the surface of that membrane affords, and ultimately joins the other portion. The anatomical distribution of the pulmonary vessels indisputably proves that their physiological function is exclusively in relation with the air supplied by the bronchial tubes, and that it is totally independent of any purpose having relation to the construction or repair of any part of the *tissue* of the lungs.

(The paper was accompanied by numerous drawings and diagrams.)

Dr. HEALE, at the request of the President, drew attention to the apparatus which he employed. He showed that in injecting the pulmonary arteries and veins with different colours both should be injected simultaneously, so that the two fluids should meet in the capillaries. If the arteries by themselves were injected first, the fluid passing through the capillaries into the larger vessels beyond would prevent the proper injection afterwards of the veins, and *vice versâ*. He showed that no anastomosis existed between the so-called bronchial vessels and those of the pulmonary system, as the capillaries of the first could be injected in every part of the lungs without any of the injection reaching any of the other vessels. In speaking of the distribution of the air to the tissue of the lungs, he mentioned that a very free anastomosis was established between the air contained in different parts of the lungs after the bronchial tubes had reached their minutest subdivision. Dr. Heale gives the name of pedicles to the smallest of the bronchial tubes, and that of leaflets to the ultimate subdivisions of the pulmonary tissue. He showed that there was a complex inosculation between different leaflets and pedicles. The equal diffusion of air throughout the lungs is further provided for by tubular passages which ramify in the subpleural and interlobular cellular tissue, and communicate with longitudinal channels in the substance of the pleura. Passing to the physiological points involved in the various anatomical details, he remarked that it was usual to speak of respiration as one thing, of circulation as another, and of nutrition as a third; but that in point of fact all three were parts of one and the same physiological operation, and that it was as impossible that the circulation or the nutrition should go on independently of the respiratory processes as that the hands of a watch should continue to point the hour when the mainspring was impeded in its action. Dr. Heale then explained at some length his views with regard to the heart's action in effecting the circulation of the blood, the physiology of respiration, &c.

Dr. LEE said that he did not come into the room until a considerable part of the paper had been read, and he could not tell whether any allusion had been made in it to the nervous structure of the lungs. He requested the author to state whether or not this was the case.

Dr. HEALE replied that he had seen the nerves floating when dissecting the lungs in some fluid. He imagined they followed the course of the bronchial arteries.

Dr. LEE then begged to be informed whether there was any dissection on the table showing the nervous structure of the lungs, and (the author having replied that he had not on the present occasion made any dissections with the immediate object of demonstrating the course or distribution of the nerves) proceeded to say that he had been engaged during the last two years in dissecting the ganglia and nerves of the lungs, and that in these dissections a great system of ganglia and nerves was displayed throughout the lungs; and he considered that without taking into account these nervous structures of the lungs the functions of these organs could not be explained. Dr. Lee finally added that he would not now intrude upon the time of the Society by giving a description of his own dissections.

DESCRIPTION OF A FŒTUS BORN WITHOUT HEART, BRAIN, LUNGS, OR LIVER.

BY WM. H. DICKINSON, M.D. CANTAB.,

ASSISTANT PHYSICIAN AT THE HOSPITAL FOR SICK CHILDREN; CURATOR OF THE PATHOLOGICAL MUSEUM, ST. GEORGE'S HOSPITAL.

This being, like all others of the same character, was a twin. Both umbilical cords were attached to a single elongated placenta. The imperfect fœtus was devoid of any vestige of head or neck. The upper extremities were present, but were in some respects imperfect. On the anterior surface was a small prominence, which appeared to represent the tip of the tongue. The umbilical cord was surrounded at its fœtal extremity by a small membranous bag, which contained a coil of intestine. The lower extremities were only slightly different from their usual state. The body was generally swollen and œdematous. The spinal column was deficient from the second cervical vertebra upwards. No trace of any cranial bones could be discovered. The clavicles were absent. The integuments were of unusual thickness, owing to a general infiltration of serous fluid. In the cavity of the trunk lay the lower two feet of the intestine, which commenced by a cæcal extremity, and two large kidneys. The ureters, the bladder, the urachus, and a pair of undescended testicles were found in their normal relations. The other viscera were absent. The umbilical cord contained

a large vein and artery. The artery divided on entering the belly into two large branches, one of which passed into the right thigh and side of the pelvis. The other division served for all the rest of the body. It swept upwards to the position due to the aorta on the left side of the spine, and gave off vessels for the left thigh, for the left side of the pelvis, and for the kidneys. It terminated between the shoulders by dividing abruptly into two large branches, which went to each upper extremity. The veins were arranged in an almost parallel manner. There was no communication between the two sets of vessels corresponding to the foramen ovale. The entire encephalon and the upper part of the spinal cord were wanting. The sympathetic ganglia were large, but not numerous. A chain of eight lay along the side of the vertebral column. Numerous filaments maintained the connexion between the sympathetic ganglia and the spinal nerves.

Since there was no communication between the veins and arteries of the fœtus answering to the foramen ovale, but the veins throughout the body were simply continuous with the umbilical vein, and the arteries with the umbilical artery, it was inferred that either in the cord or in the body of the monstrosity the usual direction of the blood must have been inverted. If it passed, as usual, from the mother down the umbilical vein, then it must have been continued into the tissues by the veins of the fœtus. On the other hand, if the course of the circulation was not thus reversed in the fœtus, the artery of the cord must have brought the supply from the placenta.

This question was discussed, and the author finally adopted a suggestion of the late Dr. Young, which had been worked out by Sir Astley Cooper, that the circulation in such monstrosities is due to the impulse of the heart of the healthy fœtus, which always accompanies them, and which is conveyed through anastomosing vessels between the two cords upon the surface of the common placenta. The blood thus reaches the imperfect fœtus through its umbilical artery, and is thence distributed to its tissues.

Mr. SAVORY said, cases like the one just related were especially interesting with regard to the forces concerned in the circulation of the blood. He believed it was now generally accepted that the heart was not the sole agent in the movement of the blood. Of the other forces employed, that which was generated at the capillaries was assuredly not the least. But cases like the present one confirmed this doctrine; for in this, as in some others, especially the case recorded by Houston, it seemed almost impossible, after a careful study of their anatomy, to arrive at the conclusion that the heart of the healthy child was sufficient to maintain, not only its own circulation, but that of the monster also. These cases, he thought, might be profitably studied by the light of comparative physiology. Just as in the lower vertebrata—as in fishes—where the small and single ventricle seemed manifestly insufficient to accomplish unaided the circulation through the capillaries of gills and system; just as in some of the lowest of the invertebrata, where, as in plants, the movement is maintained without a heart of any kind: so in these monstrous forms among the highest we must more clearly recognise, in the absence of a heart, the existence of independent forces to circulate the blood.

Dr. LEE said that there was a placenta on the table all the arteries and veins of which had been injected, and there were two umbilical cords seen passing into this placenta. It was a case of twins, and instead of there being one placenta for each child, as usually occurs, there was here only one for both fœtuses; but the circulation in these two fœtuses was not different from the ordinary circulation. Two umbilical arteries went from each child to the placenta and conveyed the blood to it, and one umbilical vein returned to each fœtus and carried the blood back. On looking at the fœtal side of the placenta, it would be seen that there were large injected arteries and veins passing between the vessels of both umbilical cords, but the circulation was not altered in consequence. It was a mere anastomosis of the arteries and veins of the two cords in the placenta. The blood of the four umbilical arteries must have circulated through the placenta and returned to the two fœtuses by the umbilical veins, afterwards to circulate through the liver, heart, and other organs in the ordinary manner. The action of the heart of one of these fœtuses could have no influence upon the circulation in the other. The placenta of the malformed fœtus described by Dr. Dickinson was unfortunately not preserved, and hence no one could tell whether there was a placenta connected with the living and another with the malformed fœtus; but it was well known that in most of these cases of malformation there had not been found a placenta connected with the malformed fœtus, but that the cord had passed into the placenta of the other child. However that might have been, the circulation must have gone on in this placenta as in the one which lay on the table; and it was impossible to believe that the action of the heart of the healthy fœtus could have forced the blood back along the umbilical arteries of the malformed fœtus and inverted the circulation in the manner first suggested by Dr. Young, and adopted by Sir B. Brodie, Sir A. Cooper, and other physiologists. Dr. Lee then added that he had examined the fœtus described by Dr. Dickinson in its recent state, and found the umbilical vein passing into the abdomen in the usual manner; but there being no liver, heart, nor lungs, the umbilical vein, greatly enlarged, proceeded to the upper extremities and kidneys, from which he believed the blood passed into a vessel corresponding with the abdominal aorta, which divided and entered the cord as the umbilical arteries do usually. He (Dr. Lee) thought it impossible to believe that the fœtal circulation was carried on solely by the action of the heart. Both ventricles united to send the blood to the placenta; but the blood, after it had circulated through the capillaries of the placenta, could not return to the liver by the action of the heart; and it was obvious that the great circulation through the fœtal liver could not be referred to the action of the heart, but to the vessels themselves. In all probability the absence of the placenta in Dr. Dickinson's case, if it was wanting, was merely a part of the malformation of the fœtus.

Dr. HEALE called attention to the fact that there must be some force acting on the circulation in the capillaries distinct from that of the heart's pulsation, in order to remedy after each pulsation the distension of the bloodvessels, which would otherwise remain in a state of maximum distension, and be unable to yield any longer to the ensuing pulsation. This force, which emptied the capillaries, must be quite as real and important as that which distended them. The changes which occurred during these intervals were precisely those for which the pulsation was calculated to furnish the materials, and they embraced all the strictly vital operations which occurred both in the pulmonary capillaries and in the system at large, and the two balanced each other with the greatest exactness. For, supposing it possible (which it is not) that one or the other should preponderate, the blood would immediately become either too arterial or too venous, as the case might be—a state of things which would necessarily be corrected in the very next pulsation. The heart's action therefore became auxiliary to the action of the capillaries. The placenta of the fœtus accomplished for it precisely what the lungs did for the adult. The difficulty of explaining how the circulation might have been carried on in the acardiac fœtus was materially lessened by these considerations.

Dr. DICKINSON, in reply to the remarks of Mr. Savory, allowed the possible existence of a force which promoted the circulation of the blood independently of the action of the heart. In vegetables the circulation was carried on by this alone; but the higher in the animal scale, the more active the circulation and the more necessary the heart. It could not be supposed that in the human fœtus the circulation could be maintained without this organ. It was almost proved that the circulation depended on the heart of the other twin by the fact that in every case of acardiac monstrosity not only was the monster a twin, but it was attached to the same placenta as served for the other child. If the circulation depended on forces within its own body, there could be no reason why it should not be carried on without this connexion. As to the objections of Dr. Lee, that the currents of blood in the cord could not be inverted, Dr. Dickinson stated that, from the fact that there was no communication between the arterial and venous systems in the fœtus, it followed that the circulation must be inverted either in the cord or in the body of the monster. With a healthy child, the blood flowed to it along the umbilical vein, which blood eventually got into the left ventricle, and so was distributed by the aorta and its branches. In the monstrosity where no foramen ovale existed, if the blood passed to its body by the umbilical vein, it must have been carried into the tissues by the veins. Thus in the body the blood must have gone contrary to the usual direction. On the other hand, if the blood was distributed by the arteries after the usual manner, it was evident that it must have been brought from the placenta by the artery of the cord which was in direct continuation with them. In this case the circulation in the cord must have been inverted. In any case it was necessary to allow the inversion either in the cord or in the body.

AT the late annual dinner of the Royal Free Hospital, £5000 was subscribed in the room.

Reviews and Notices of Books.

Jaundice; its Pathology and Treatment. By GEO. HARLEY, M.D., Professor of Medical Jurisprudence in University College, London, and Assistant-Physician to University College Hospital. 8vo, pp. 136. London: Walton and Maberly.

THE pathology of certain forms of jaundice is still veiled in considerable obscurity. In Dr. Budd's valuable treatise on "Diseases of the Liver," which represents the views on the subject commonly entertained in this country, two great subdivisions of jaundice are spoken of: one in which there is some mechanical obstruction in the biliary passages to the excretion of bile; and the other in which no such impediment exists. In the former case, whether the obstruction be due to the presence of gall-stones or hydatids, to cancer, to ulceration of the duodenum at the orifice of the ducts, to congenital deficiency of the ducts, or to any other cause, there is no great difficulty; the jaundice is evidently due to the reabsorption into the blood of the ingredients of bile which ought to have found their way into the intestine. The real difficulty consists in offering a satisfactory explanation of those forms where there is no mechanical impediment in the ducts, inasmuch as the solution of this question raises another debated point, as to whether the elements of bile exist preformed in the blood, or are altogether elaborated by the liver. Dr. Budd and many other writers have attributed these forms of jaundice to a *suppressed* or defective secretion of bile. "In these cases," says Dr. Budd, "the most obvious explanation of the facts is that the *biliary pigment* exists in the blood, and that in consequence of defective action of the secreting cells it is not eliminated, as it should be, in the liver." It is right to observe, however, that Dr. Budd makes an exception in the case of the *biliary acids*. "The most skilful chemists," he says, "who have recently analyzed the portal blood have failed to detect the biliary acids in it, and have come to the conclusion that these at least are formed in the liver." Professor Frerichs, on the other hand, maintains that *none* of the elements of bile exist already formed in the blood, and hence that jaundice can never be due to a suppression of the secretion. His theory of jaundice, independent of obstruction of the ducts, is this:—He believes that even in a state of health some of the elements of bile, and more especially the biliary acids, are in part reabsorbed into the blood of the hepatic veins. Under ordinary circumstances, the biliary acids which are thus absorbed are converted into taurine, which is found in the lungs, and into the pigments which are voided in the urine. These normal metamorphoses, however, are liable to be interfered with by the presence of certain poisons in the blood, or by nervous agencies; and then the colourless bile-acids are apt to be converted into bile-pigment, and so produce jaundice. This theory Frerichs supports by showing that bile-pigment may be formed artificially from the biliary acids; and that when the colourless bile-acids are injected into the blood of animals, jaundice is produced, and bile-pigment is voided in the urine. Frerichs' statements have been confirmed by many distinguished observers, and particularly by Professor Staedeler, of Zurich, and Dr. Neukomm.

Dr. Harley, like Kuhne, has not succeeded in confirming Frerichs' experiments, and he therefore rejects his theory of jaundice, and adopts that of Dr. Budd. It is not difficult, he thinks, to prove that the liver manufactures certain biliary constituents, while it merely secretes others. The biliary acids he believes to be formed by the liver alone; while, on the other hand, the cholesterine and bile-pigment are already formed in the blood, and are merely secreted by the liver. Hence when the functions of the liver are suppressed, bile-pigment, but not the biliary acids, accumulates in the blood, and jaundice is the result. If this be so, it is not a little remarkable that in animals whose livers have been extirpated there is no accumulation of bile-pigment in the blood, and that, contrary to Dr. Harley's opinion, in not a few cases the structure of the entire liver has been found destroyed by disease in the human subject, without any jaundice resulting. After enunciating his theory of jaundice, Dr. Harley proceeds to make an ingenious application of it to diagnosis, with regard to which we cannot do better than quote his own words:—"In jaundice from suppression, the liver does not secrete bile; consequently no bile-acids being formed, none can enter the circulation, and they are therefore not to be detected in the urine. In jaundice from obstruction, on the other hand, bile is secreted and absorbed into the blood; and the bile-acids, not being all transformed in the circulation, as Frerichs supposed, are eliminated by the kidneys, and appear in the urine."

Hence, according to Dr. Harley, the presence of the biliary acids in the urine, in any case of jaundice, shows that the jaundice is due to mechanical obstruction of the bile-ducts, and not to suppression of the hepatic functions. Such being the case, it is important that we should be provided with a ready method for the detection of the biliary acids. The test proposed by Dr. Harley is Pettenkofer's, which consists in treating the urine with sugar and sulphuric acid. Here are Dr. Harley's instructions:—"To a couple of drachms of the suspected urine add a small fragment of loaf-sugar, and afterwards pour slowly into the test-tube about a drachm of strong sulphuric acid. This should be done so as not to mix the two liquids. If biliary acids be present, there will be observed at the line of contact of the acid and urine—after standing for a few minutes—a deep purple hue. This result may be taken as a sure indication that the jaundice is due to obstructed bile-ducts. On the other hand, the absence of this phenomenon, and the occurrence of merely a *brown* instead of a *purple* tint, although in the earlier stages of jaundice equally indicative of suppression, is of course, for the reasons already given, no indication of the cause of the suppression."

If the views inculcated by the author be confirmed by subsequent observation, there can be no doubt that he has considerably simplified the pathology of jaundice, and that physiological chemistry has contributed another important aid to diagnosis. It must be confessed, however, that not only is the theory of jaundice, on which the author's views are founded, open to grave objections, but the evidence in favour of the statement that the presence of biliary acids in the urine is a certain proof that the jaundice is due to mechanical obstruction of the ducts, is insufficient. Before the statement can be accepted in the confident terms employed by Dr. Harley, it must be confirmed by a large number of carefully observed cases. In the volume under review, Dr. Harley alludes to only one case in its support. The lengthened details of this case are most interesting, although we are inclined to think that the disease commenced in the duodenum, and not in the head of the pancreas, as supposed by the author. On the main question, whether jaundice dependent on obstruction of the ducts is always accompanied by biliary acids in the urine, and thus distinguished from other forms of jaundice, we shall be glad to have further evidence from Dr. Harley and from the profession generally. The subject is one well worthy of investigation. For such an investigation it would be well to select cases of obvious and unmistakable obstruction of the ducts. Acute atrophy of the liver has always been regarded as a typical instance of jaundice independent of obstruction. In the only case of this formidable disease which came under Dr. Harley's notice, bile-acids were found in the urine. This circumstance might have been regarded as fatal to the author's theory. In consequence of the presence of the acids, however, Dr. Harley argues that the disordered circulation of the liver must have caused obstruction of the ducts, and that therefore the suppression must have been complicated with reabsorption of bile.

Another form of jaundice independent of mechanical obstruction is that which occurs in the course of many of the so-called

zymotic diseases, such as ague, typhus, and scarlet fever; or as the result of other forms of blood-poisoning. The author attributes the jaundice in all such cases to active congestion of the liver, the engorged capillaries pressing upon the secreting structures, and so suppressing their functions. A case of ague is cited in support of this view. In this disease there is unquestionably a great tendency to congestion of the portal system. Jaundice, however, is a rare symptom in ague, and when it occurs it is probably due to catarrh and consequent obstruction of the biliary ducts. On the other hand, in most of the cases of scarlet fever, exanthematic typhus, enteric fever, and other blood-poisonings, where death has been preceded by jaundice, the liver is found free from abnormal injection, or is even pale and anæmic. In many of these cases the liver somewhat resembles the condition known as acute or yellow atrophy: its tissue is soft and friable; its secreting cells are loaded with oil, or are in process of disintegration; while leucine and tyrosine are found both in the secreting tissue and in the urine.

At the termination of the work is a tabular view of the mechanism of the various causes of jaundice according to the author's views. It is remarkable that neither here nor elsewhere in the book is any allusion made to what is generally regarded as the common cause of jaundice in this country—namely, catarrhal inflammation of the bile-ducts, producing tumefaction of the mucous membrane, and consequent occlusion of their channel.

Dr. Harley's book contains an account of several interesting experiments on the lower animals. One of these consisted in the production of artificial jaundice in a dog, by injecting healthy bile under its skin. On the third day the animal became ill, and on the fourth jaundice set in. Death occurred on the fifth. After death the urine was found to contain not only bile-pigment and bile-acids, but also leucine, tyrosine, and sugar.

Some judicious remarks are made under the head of treatment. The impropriety of employing remedies to act on the liver, merely because there is jaundice, is justly commented on. A line of treatment found to be beneficial in one case of jaundice may prove hurtful in another. Mercury, the mineral acids and alkalies, benzoic acid, podophyllin, and all remedies which are known to stimulate the action of the liver, are obviously contra-indicated in cases where there is a mechanical obstruction in the biliary ducts. The increased secretion resulting from these remedies only renders the evil worse, because the bile, being unable to find its way into the intestine, must be absorbed into the blood. Dr. Harley's views as to the actions of mercurials on the liver are peculiar:—"The action of mercurials seems to me to be this. Mercury is a powerful antiphlogistic; it reduces the volume of the blood by its purgative properties, and it impoverishes the blood by its direct action on the red corpuscles. From this it is easy to understand how mercury acts in inflammatory affections; and as in the majority of cases of jaundice from suppression the stoppage of the biliary secretion is due to active congestion of the liver, mercury proves beneficial in such cases, not by stimulating the biliary secretion, but simply by removing the obstacle to its re-establishment." Without discussing this theory, we may observe that in a large proportion of cases of jaundice, independent of mechanical obstruction, there is no abnormal congestion of the liver; while in acute atrophy of the liver, and in jaundice occurring in the course of many blood diseases, mercurials have been almost universally condemned by the most experienced clinical observers. In cases of gall-stones, Dr. Harley thinks that much benefit may be derived from carbonate of soda; not that the remedy acts as a solvent of stones already existing, but that it is calculated to prevent the formation and deposition of other calculi. He justly insists upon the advice given by Frerichs, not to trust to the ordinary instructions for finding a gall-stone in the stools, by adding water, and then watching whether any calculus floats on the surface, but to mix the stools freely with water, and then strain the mixture through a hair-sieve.

In conclusion, we have much pleasure in recommending Dr. Harley's work to the favourable notice of the profession. It is a laudable attempt to turn physiological chemistry to account in the diagnosis and treatment of a class of diseases where it may be expected to be of the greatest service. We hope to meet the author at some future time, when his theoretical views are confirmed or modified by a greater amount of clinical experience at the bedside. In the meantime he has done good service by making his views known, and giving his professional brethren an opportunity of confirming or refuting them.

VENTILATION OF ARMOUR-CLAD SHIPS.

THE *Royal Oak* would appear to be destined to play as important a part in the sanitary history of the Royal Navy as the *Warrior* in the fighting. As the custom is among naval architects, while every care had been given to the offensive and defensive powers of our armour-clad frigates, little heed had been bestowed upon their capabilities as dwelling-places for a crew. True these ships would carry a smaller number of men than it was usual to assign for vessels of their tonnage, and each sailor as a consequence would luxuriate in a larger cubic space between decks than he would have possessed in a wooden ship-of-war. But it had been omitted to estimate the probable influence of iron-plated walls in acquiring and retaining heat, as well as the effects upon a confined atmosphere of outlets and inlets which had been reduced to the lowest degree, not only in number, but also in capacity, consistent with the working of the vessel. It was quickly found that the crews of armour-clad ships were exposed, in hot weather, to the risk of being suffocated (after the fashion of doughty knights of old), as well as to many less conspicuous, but not less serious, evils arising from the vitiated atmosphere of the between-decks. To obviate these evils, a system of ventilation was suggested by Captain Fanshawe, the superintendent of Chatham Dockyard, and it was carried out in the *Royal Oak* while that vessel was still on the stocks. We long ago urged that until the hygienic conditions of ships-of-war entered into the consideration of naval architects as fully as the sailing and fighting qualifications, there would be little hope of the removal of those sanitary drawbacks which affect the crews. The results of the system of ventilation adopted in the *Royal Oak* would seem to confirm this view. The success is stated to be so great that the Admiralty has decided to ventilate all the ships of the armour-clad fleet on the same plan.

THE ROYAL SOCIETY.

To the Editor of THE LANCET.

SIR,—The remarks which you last week published concerning the recent nominations of the Council command my entire adhesion, and, as I have good reason to know, that of many other of our Fellows. It is difficult to understand the principle which has guided the Council in restricting the nomination to two physiologists out of fifteen new members proposed. It is impossible to reconcile it with the understanding which existed that five out of the fifteen places should be annually accorded to physiologists or physicians, when the list of candidates presented enough of good men. It is a manifest injustice to put forth such a list as the present. Had the candidates in other branches of science presented so brilliant a cluster of distinguished names as to outweigh other claims, there might have been an excuse; but it is certainly far from being so. Of the thirteen gentlemen selected, there are many very little known to fame, and some with whose names neither I nor several other Fellows with whom I have discussed the matter are at all acquainted: far be it from me to infer that they are everywhere unknown, but I am very sure that they have no overpowering celebrity; indeed, it is agreed by all that the list is a very weak one. On the other hand, it certainly cannot be said that there was any deficiency of able physiologists and physicians among the candidates; and if the Council had introduced into the roll the names of Brinton, Radcliffe, and Macdonald of Dublin, these nominations would assuredly have presented a not less distinguished *ensemble* than it does at present, and the just claims of medicine and physiology would have been more nearly satisfied.—I am, Sir, yours &c.,

May, 1863. F. R. S.

THE LANCET.

LONDON: SATURDAY, MAY 23, 1863.

THE attempt of Sir J. FERGUSSON to legislate on the question of Compensation for Accidents sustained in Railway Travelling has most deservedly failed. That seventy members of the House of Commons could have been found to vote for a measure which arguments did not vindicate nor expediency excuse, is only explicable on the assumption, that when interests seemingly conflict with principles, the judgment does not invariably exercise a sound discretion. On no other ground can we explain such an amount of support having been afforded to the proposed Bill, since, from whatever view its merits be investigated, the opinion pronounced by Mr. LONGFIELD receives additional corroboration, that "it was one of the most indecent propositions that had ever been submitted to the House." Let us be just to Sir J. FERGUSSON. He *did* claim as a precedent that which he regarded as an analogous measure. CARDWELL'S Act enacts that companies should not be liable for injury to animals above a certain value, unless the value was stated, and they had full knowledge of the risk they were incurring. The necessity of declaring the value of racehorses conveyed by rail was quoted by Sir J. FERGUSSON in explanation of his proposed principle of limited liability. To our mind animals far more humble might, according to the laws of sympathy, have supplied illustrations of much greater similitude and force to the advocate of a measure who sought to assess the value of the life of his fellow man by no higher standard than that applied to the brute. It is not to the measure itself so much as to the statement by which it was supported—argument is not a fitting term to apply to the rhodomontade spoken on the occasion—that we direct attention, limiting our observations principally to the imputations attempted to be cast upon the members of the medical profession.

The honourable baronet having developed his singular views, proceeded to state that "pettifogging solicitors and compassionate doctors were always to be found to do their utmost to enforce claims, no matter how lightly founded, against the companies. A conviction existed on the part of railway companies that there was a sort of partnership between solicitors and doctors in these cases. There was a class of solicitors and doctors who made it a practice to get them up. A small lawyer took up a case, and there was no difficulty in getting half a dozen doctors to come forward to support it; for, without casting any imputation upon professional men, it was a matter of fact that almost any number of professional men could be got to give evidence on any side whatever, and often of the most contradictory character." (A laugh.)

Whether Sir J. FERGUSSON'S reservatory observations apply to the preceding or subsequent allegation in the foregoing statement, it is not worth while to inquire. It is enough that we characterize the whole as a stupid calumny, unthinkingly adopted, in support of an untenable proposition. Perhaps no class of interests is so completely protected by the Government as that of railway companies. They furnish the nearest approach to those monopolies once so odious in the eyes of the nation. They virtually have the public, with few restrictions, at their command. Representing immense capital, they derive proportionate income, and exercise commensurate influence. In order that they might occupy an altogether exceptional position, Sir J. FERGUSSON sought to have them divested of responsibilities which the law has fortunately ordained as correlative with their privileges. The reasons urged rested in the alleged inequality of compensation capable of being claimed, through agreements based on identical considerations; the remedy proposed being a limitation of damages to £400, £300, or £200, for first, second, or third-class passengers, no further liability to exist except in accordance with a special contract. This eccentric effort at legislation found advocates, who possibly attributed fluctuation in their dividends to the operation of causes which they possess the power thus, with a seeming regard to equity, to control. We are glad, for the sake of humanity, to affirm that in this they were mistaken, inasmuch as the amount of compensation for accidents paid since the railway system came into operation does not bear more than a fractional proportion to the money otherwise recklessly outlaid. And in no case have verdicts given awards where gross negligence had not been proved to have existed. The accuracy of the knowledge of those who supported Sir J. FERGUSSON may be inferred from the instance mentioned by Mr. DUTTON, known as the Wimbledon accident, in which the late Dr. BALY'S life was sacrificed. The cause of this, Mr. DUTTON declared, had never been accounted for. It is true that the Coroner's jury, as stated by Mr. DUTTON, returned an open verdict. They found, however, that the tyre of the middle wheel of the tender had rotated on its body, and had admitted of lateral displacement, and this a special jury, in the subsequent trial of FORD against the Company, arising out of the accident, considered to have been the cause of the departure of the carriages from the line; and the Company did not succeed in setting aside the verdict, though they sought to do so. Other accidents on various lines have been assigned to imperfection in machinery or rail that might and ought to have been detected, or to negligence on the part of servants for which there was no excuse. From the consequence of such omissions railway companies, through Sir J. FERGUSSON, sought protection, the only argument being, that juries, on rare occasions, to those injured awarded high damages. It seems incredible, not that such a measure should have been proposed, but that, being proposed, the only colourable excuse attempted in its vindication should be the imputations sought to be cast upon the medical profession.

We admit that in the majority of railway accidents considerable conflict in medical testimony not unfrequently exists. Does such a conflict supply sufficient grounds for the statements to which Sir J. FERGUSSON has given expression?

Perhaps there is no class of accidents involved in such obscurity and difficulty as that which includes violent shocks to the nervous system. Where material lesions or demonstrable injuries are palpable, few medical practitioners have any difference of opinion respecting their extent and nature. Where, however, no external wounds are present, and the question of compensation resolves itself into the appreciation of vital phenomena and their probable or possible eventualities, men of the largest experience and purest honour may conscientiously arrive at different estimates. Sir J. FERGUSSON forgot to state, that on every trial to which he alluded, railway companies call as witnesses physicians and surgeons of the first ability, whose

opinions are equally presented to the jury with those of the "compassionate practitioners" appearing for the plaintiffs; that the judge places the evidence on both sides before those with whom the decision on the relative importance of witnesses rests; so that, before injustice can be accomplished, the value of testimony must be set aside, and the significance of facts disregarded. No doubt under such circumstances mistakes may occur, and erroneous verdicts may be given. This is merely to say that human institutions, however well matured, are imperfect. Further than this the affirmation should not go, inasmuch as it is a fact that such verdicts are much less frequently set aside for excessive damages, or other causes affecting the impartiality and discretion of the jury, than those of any other forms of action. There is nothing more difficult to determine than the nature, and certainly nothing could be more rash than to attempt to hastily estimate the extent, of railway shocks to the nervous system. In one case the result may be prompt and pronounced; in the other, occult and progressive. In one it may present perfect loss of power, which diminishes and becomes partial; in the other it may at first be partial and eventuate in a complete prostration. In the one, at the time of accident the sufferer may have been severely injured, and on the trial show no sign; in the other, the plaintiff in the witness-box may exhibit a broken constitution, though for weeks after the event he had not complained. This mysterious and anomalous operation of disease is invariably perverted to the injury of medical witnesses, and urged in support of imputations on the value of their testimony—imputations suggested by interest, and not sustained by proof. On the part of our profession we can only say that we trust that "compassion" will never be wanting when wrong and suffering require redress. But if by "compassion," in its disreputable association, Sir J. FERGUSSON insinuates a compromise of principle, or a straining of testimony where men are sworn to speak according to their knowledge, we can only regard the observation as gratuitously offensive, and rejoice to add that in the House of Commons a large majority were found to repudiate a measure at variance with every sound principle of legislation, and, as might therefore have been anticipated, supported by statements both uncharitable and unjust.

DURING the last session of Parliament an Act was passed "to make further provision respecting Lunacy in Scotland." By this Act several important particulars of the previous lunacy law of the North were modified. For example, the definition of the term "lunatic" was extended, and is now made to include every person certified by two medical men to be "a lunatic, an insane person, an idiot, or a person of unsound mind." Thus the law of Scotland is made equivalent to that of England, and this will at once remove certain obstacles which had before occasionally interfered with the prompt and proper treatment of the insane in the first-mentioned part of the kingdom. A second noteworthy change is the legal recognition of lunatic wards in poorhouses as permanent accommodation for pauper lunatics, under certain conditions and restrictions. A relaxation is also introduced of the previous stringent enactment which required District Boards of Lunacy to provide accommodation for their pauper lunatics within their own district, either in public or district asylums. Further, the procedure for placing patients in asylums has been in some degree modified by the recent Act. The petitioner is now ordered to declare the relation in which he stands to the lunatic, and the public convenience has been consulted by extending the period during which a certificate of emergency is valid—viz., from one to three days. The disposal of dangerous lunatics has also been rendered less expensive by authorizing the Sheriff to permit the Inspector of Poor within a certain stage of the proceedings to take charge of the patient, provided always proper arrangements be made for his safe custody. The Amendment Act likewise empowers the Commissioners to grant special licences to occupiers of private houses for the reception and detention therein of lunatics, not exceeding four in number, without the exaction of any licence fee. The remittal of the fee is also permitted in the case of charitable institutions established for the care and training of imbecile children. The spirit of liberal legislation which these details show to pervade this Act is strongly illustrated in the clause which permits persons to place themselves voluntarily under treatment in asylums.

The Commissioners in Lunacy for Scotland have just issued their fifth annual report to the Home Secretary. We learn from it that the total number of the insane in Scotland on the 1st of January, 1862 (exclusive of the unreported lunatics placed in private dwellings and maintained from private funds), was 6341. There was but a slight increase (32) in pauper lunatics, as also in private lunatics (39), in comparison with the previous year. To what cause the comparatively slow growth of pauper lunacy is to be ascribed the Commissioners cannot say, but "scarcely venture to hope that the result of future years will be found as favourable." They ascribe the nearly stationary amount of private lunacy principally to the impoverishing operation of mental disease, through which a considerable number of private patients are each year converted into paupers. It is maintained that an erroneous estimate has been formed of the prevalence of insanity in Scotland, by instituting comparisons between the number of the insane in England and in Scotland, founded on the official returns of the English and Scotch Boards of Lunacy. In making these comparisons it has been overlooked that in the English returns no account is taken of private lunatics resident with friends, and boarded by strangers, who have not been reported to the Commissioners. Of this class there are not, perhaps, far short of 2000 in Scotland. The Commissioners likewise draw attention to the fact that in Scotland their visits are not limited to asylums and poorhouses, but extend to every house, wherever situated, in which a pauper lunatic is placed. Every parish north of the Tweed is thus visited, on an average, once a year, either by the medical commissioners or by deputy commissioners. There is accordingly good reason for believing that the number of unreported pauper lunatics is much less in Scotland than in England, where no such parochial inspections are enforced. The conclusion of the Commissioners is probably a correct one, —namely, "that any seeming excess of lunacy in Scotland is not so much due to a larger proportion of insane in the population, as to more copious and accurate returns."

There is evidently an excess in Scotland of female over male pauper lunatics. This is ascribed, not to any greater disposition of the female sex to insanity, but to the larger source from which the supply of female pauper lunatics is drawn. This opinion derives support from the fact that when the inquiry is restricted to private patients it is found that the proportion of male to female lunatics placed in asylums is as 100 to 106, the

proportion of males to females in the general population being as 100 to 111. Upon the disposal of the insane poor in lunatic wards attached to poorhouses the remarks of the Commissioners appear to us as deserving of particular attention. Hitherto such disposal has been a question of only temporary importance; but it now becomes one of much greater moment from the permanent character given to such accommodation by the recent Act. It is clear that on the whole the Commissioners do not look with favour upon the principle of attaching lunatic wards to poorhouses; whilst to some points connected with such principle they are strongly opposed. We entirely participate in their opinions. They observe: "We have deemed it proper to state our views thus explicitly on this important question; but, at the same time, we distinctly disavow any intention of unduly pressing their adoption on parochial boards. Nevertheless, we think it our duty to take steps to check the growth of an evil which, if allowed free development, would render the lunatic wards of poorhouses open to most of the objections which have been urged against the maintenance of pauper lunatics in private asylums. We allude to the practice of receiving, as boarders, lunatics chargeable to parishes which have no proprietary share or interest in the poorhouse. If a parochial board resolve to provide lunatic wards for a certain portion of its insane poor, we will not withhold our licence, taking, of course, all due precautions to secure the proper treatment of the patients; but, as a general rule, we will not sanction the unconditional reception of the pauper lunatics of other parishes. To do so would be to encourage the growth of an inferior style of asylum accommodation which, in proportion as it extended, would react upon and deteriorate the condition of the public and district asylums, where proper treatment is the first, and economy only a secondary consideration. By restricting lunatic wards of poorhouses to the reception of the insane poor of the parishes to which such poorhouses belong, we shall be doing these parishes no injustice, for the poorhouses were originally erected with no view to serve as asylums; and we shall, on the other hand, be conferring a positive benefit on the parishes which have no lunatic wards, but which at present avail themselves of the accommodation which they afford, by securing for them the provision of better accommodation, and superior advantages in other respects, in district and public asylums at no greater cost. It is difficult to see what other object parochial boards can have in receiving patients from other parishes into the lunatic wards of their poorhouses than the profit which they derive from the transaction. The rate of maintenance charged for such patients is considerably higher than the calculated cost of those chargeable to the parish to which the poorhouse belongs. It is not, however, our intention to place any absolute veto on the admission into lunatic wards of poorhouses of boarders from other parishes. Our main object is to check the growth of a traffic in patients for pecuniary profit, and not in any way to prevent the development of accommodation which the necessities of the public may really demand."

Attention is drawn to the doubt which still continues to prevail as to the power possessed by medical superintendents to enforce the return of patients after an escape. The English law limits the period during which recapture is lawful to fourteen days, and there has been a disposition in Scotland to follow this precedent. But as the Scotch law is entirely silent on the point, and as in Scotland the Sheriff's order is regarded as a legal warrant for the detention of the patient, it is doubtful whether it can expire by any mere lapse of time. As this view, however, would never be acted upon, the Commissioners properly desire that the question should be authoritatively determined by the State. Another point requiring further consideration is the power which the relatives of unrecovered pauper lunatics now possess of removing the latter whilst under treatment in asylums, by simply withdrawing the patients' names from the poor-roll. It is true the Court of Session has given a judgment which would tend to check this power, but there exist obstacles in the way of bringing such judgment into practice.

On the whole, we glean that the condition of the private asylums in Scotland continues to improve. The progress, according to the Report, is, perhaps, but little apparent from year to year, but becomes clear and well-marked when the present state of the private asylums is contrasted with that recorded in the Report of the "Royal Commissioners."

A STARTLING announcement is made in the semi-official organ of the War Office, of which we are not at present in a position fully to estimate the importance. It is announced that there is to be a new Warrant to regulate the relative rank of medical officers of the army. It is distinctly stated that the Warrant 8008 is cancelled, and that officers will do well to remember that it is no longer in force. There is such an inconceivable mixture of feebleness and despotism in the course pursued by the Horse Guards towards the medical officers, that it is possible to believe in any act, however arbitrary or senseless, being accomplished by those authorities in dealing with the surgeons. But it is hardly imaginable that any serious attempt will be made again to annul the privileges of rank which have been alternately given, annulled, and partially restored by the recent Warrant in question.

The dissatisfaction excited by the withdrawal of these privileges was intense and universal. Together with many acts of petty tyranny and insult which were felt to indicate a settled determination to crush and degrade the medical officers, the retraction of the relative rank had produced a condition of discontent which bordered on the limits of mutiny. We state that which is well known to the whole service, which is especially within the cognisance of the head of the Medical Department, and is indeed known to all, when we assert that for months before the issue of the Warrant 8008, which is now asserted to be cancelled, the Medical Department resounded with a unanimous cry of vexation and disgust. From the senior inspector of hospitals to the youngest assistant-surgeon, there was not one man who did not earnestly claim from the Government that restoration of their privileges which was in some measure accorded by the Warrant. Hence the present announcement, which is not yet fully understood, although of a most ominous character, is received with incredulous astonishment. If the authorities should now again annul the privileges which were only a few weeks since restored, we do not hesitate to say that they would be guilty of an act of folly and tyranny equally odious and contemptible, and utterly destructive of the returning confidence and good-will in the department. Such a step would indeed be little less than insanity. It would argue a degree of incompetence and want of judgment which has hardly ever characterized any public or private act. It is

difficult to know what interpretation to put upon the present announcement; but, for the sake of the department and of the army, we sincerely hope that that which is most obvious is not the most correct.

Medical Annotations.

"Ne quid nimis."

PHYSIOLOGY OF TEA-DRINKING.

THE reduction of the duty on tea involves not only a financial experiment, but a physiological one, of interest to all who study medical and social science.

An enthusiastic historian of the stimulants we use might find plausible ground for saying that the introduction of tea into the western world is the most revolutionary innovation in the sphere of diet which history records, and for tracing to its influence on our national character much of the mental and physical activity of this nineteenth century. We must avoid enthusiasm, and try to say a few sober words on this subject.

The Chancellor of the Exchequer anticipates an additional consumption of tea to the figure of 6,000,000 pounds (?) What will be our experience of English character and life under this increased tea-drinking? What will be the equivalent physiological results of other six millions of pounds of tea? What will be their effect on English temper and tissue?

That tea has an influence over the tissues of the body is now among the things admitted in physiology. This influence is of a conservative nature, and its value to the poor can scarcely be overrated. To them, tea is virtually tissue, and makes a supply of food, that would otherwise be inadequate to maintain the weight of the body, sufficient for that purpose. Doubtless an unlimited supply of food capable of replacing any amount of effete tissue would be preferable to a substance which simply goes to prevent tissue from becoming effete; but this is impracticable—the unlimited supply of nitrogenous food being a thing that as yet neither Providence nor politicians have given to us. Doubtless, too, alcohol has, in common with tea and other substances, this power of retarding the waste of the tissues of the body; but probably it acts differently, and certainly it is open to strong objections which cannot be made against tea. This preservative power of tea over the tissues has not hitherto been explained. Perhaps it may not be altogether unconnected with another influence of tea which we proceed to notice—namely, an influence over the temper, or rather the mood, or, speaking physically after our fashion, over the nerves. Nothing affects the wear of tissue more than mood; and tea has a strange influence over mood—a strange power of changing the look of things, and changing it for the better: so that we can believe, and hope, and do, under the influence of tea, what we should otherwise give up in discouragement or despair—feelings under the influence of which tissues wear rapidly. In the language of the poor, who in London, we are told, spend an eighth of their income in buying tea, it produces a feeling of comfort. Neither the philosopher nor the philanthropist will despise this property of tea, this power of conferring comfort or removing *ennui*, of promoting those happier feelings of our nature under which we can do most and bear most. There is no denying the considerable dependence of our moods and frames upon substances; and as moods are as important as muscles, as they affect as largely a man's ability for the great ends of life, we cannot regard the cheapening of such substances—when devoid of noxious qualities—as other than a most important benefit to the poor and a most interesting experiment for medical observers to watch.

Tea is indeed a great fact in our present mode of life. It has been the making of an additional meal among us since the "good old days" when people lived on three meals a day. Justice has scarcely been done to the magnitude of the change which has happened since the time when gentlemen—aye, and ladies too—took beer to their early breakfast, when they dined at eleven, supped between five and six, and went to bed at ten. Tea and coffee have been the principal causes of this revolution.

One of the most important results of the use of tea is the prolongation of the social evening. At the time of evening leisure it gives the feeling of morning lightsomeness and freshness. It has something like the effect of sleep upon us. It removes that heaviness which follows the principal meal and would take us to bed "at ten." It postpones the hour of sleep. As a consequence of the postponement of the hour of sleep, follows inevitably the postponement of the hour of waking. Early rising has probably no such enemy as tea. There are not a few people who breakfast when their fathers used to think of dinner, who dine when their fathers supped, and who take their enlivening cup at the hour when their fathers were getting stupid and making ready for bed. No doubt there is some evil in all this, but there is more good. The mere alteration in the hours of sleep, or even the taking of an additional hour for this purpose, are not necessarily evils. The question of evil or good turns upon the character of our waking hours, and we believe we are not saying too much for our present life when we say that life never was so active and so fruitful of good results as now.

Of course the increased consumption of tea which is to happen may involve some physiological consequences of a disagreeable nature; but not many. For the class to whom the cheapening of tea will be the greatest temptation are not troubled with "nerves." They have so much hard work to do, and so little of luxury in their lot, that the addition of a little good tea to their daily fare can only be a great comfort and a great boon, for which they will bless the name of Mr. Gladstone.

RECOGNITION OF THE DEAD AFTER DECOMPOSITION.

IN our impression of last week we published a paper of great interest, from the pen of Dr. R. W. Richardson, on a process for restoring the appearance of the face of a dead person, after decomposition had taken place to an extreme degree, in order to establish identity. The facts of the inquiry are so fully described by Dr. Richardson, to whom the profession and the public are indebted for the suggestion and carrying out of the process, that we shall not here dwell upon them; but we would indicate briefly their peculiar value in medico-legal investigations.

First we would observe, that although this experimental work was undertaken under most disadvantageous circumstances, inasmuch as the time was very short, the body greatly decomposed, and the experiment so new that everything had to be improvised on the spot, yet the result, in a legal point of view, was a marked and definite success. It enabled witnesses who previously could form no opinion respecting the dead man to affirm on oath that it was not the assumed murderer. A deep mystery was thus cleared up, and, as the Coroner remarked, all the evidence that was required for the legal identification of a human body, which had previously been unrecognizable, was obtained. But notwithstanding this great success, Dr. Richardson shows that what was done could be largely improved upon. In accepting these facts we cannot avoid directing the attention of the younger members of the profession, those especially who are engaged in the deadhouse, to Dr. Richardson's instructions as to the way in which new inquiries should be proceeded with.

As a public question, the results of this inquiry are on many grounds most satisfactory. We can, however, indicate at most but one or two considerations. The reproach is often cast upon medical science that it is too apt to throw obstacles in the way of justice; and it is also often asserted that medical men,

by their presence in an important case, are only so many contradictory stumbling-blocks to the judge and jury. In this instance the reverse obtains; for had not medical science stepped in it is a certainty that the dead man found in the Thames on the 4th instant would have borne with him to his grave the charge of the St. Giles's murder, while the true murderer, shielding himself behind this protection, would have walked amongst men unsuspected, it may be, to the end of his life, relieved only from the consciousness of his iniquity by the feeling that a scapegoat had been found for his crime. We know now, and medical science has entirely to be thanked for the information, that the true murderer is still at large, and that justice follows him. But it is not in cases of murder alone that Dr. Richardson's process will prove useful. In cases where property is concerned,—where relatives, for example, are in doubt whether or not their friends have or have not met with an accidental death, as in some instances of shipwreck, fires, and the like,—it is most satisfactory to know that if a body be found, and the tissues have not undergone destruction from actual disintegration, the identification can be almost certainly secured.

The thanks of the profession are due to Mr. Humphreys, the Coroner, for the prompt manner in which he took advantage of scientific progress for the elucidation of a very difficult question.

FOG SIGNALS.

A PROFOUND impression has been produced by the melancholy loss of life resulting from the wreck of the *Anglo-Saxon*, at Cape Race. Like the recent accident to the *Telegraph* steamer, which struck on a rock near Holyhead, the catastrophe was due to fog, and might have been prevented by efficient fog-signals. It may be earnestly hoped that the Government will be induced to yield to the representations which have been several times made to it by scientific and practical men as to the fact that the fog-signals of British light-houses and light-ships are not sufficiently powerful, and that further experiments should be made with the view of providing more efficient warning in fog. This was a formal recommendation of the Royal Commission on Lights, Buoys, and Beacons, and of a committee of the British Association; and Dr. Gladstone, one of the Commissioners, has recently made known the result of some interesting inquiries which he has personally conducted on this matter.

The condensed vapour which constitutes fog obstructs light, as we all know, to a considerable extent, and hence the efforts which have been made to warn vessels by means of sound. Thus near the scene of the Holyhead accident there is a light-house, a great fog-bell, and a signal-gun, which is fired at stated intervals. But unfortunately fog stops the waves of sound as well as the rays of light, and it was proved that on board the *Telegraph* the light was invisible, and the fog-bell and signal-gun both inaudible, by reason of the density of the mist with which the air was loaded. On the other hand, bells have been heard for miles during a fog; and, as we have nothing to substitute for sound as a fog-signal, we ought to set to work at once to perform experiments as to the manner and extent of absorption of sound by fog, the penetration of notes of various pitch, intensity, prolongation and repetition, the influence of height, reflection by a background, and other circumstances as to which information is needed. The New York papers allege that the disaster to the *Anglo-Saxon* might have been prevented had not the British, for some unaccountable reason, refused to permit persons interested to place one of Daboll's powerful air-trumpets at Cape Race, which could be distinctly heard in foggy weather from six to ten miles at sea, and would save millions of property and hundreds of lives. This is, we believe, a kind of large steam-trumpet worked by Ericcson's engine. A similar instrument has been planned in this country by Mr. Cowper; and a most powerful instrument of the kind, adapted for notes of various pitch, and described as giving a buzzing sound of wonderful intensity, has been made by Professor Holmes. It has been suggested that the experiments of M. Colladon, which prove the great distance to which sound is transmitted through water in a swift and direct course, may be studied and extended for the present purpose. On the whole, experiment is greatly needed; and we trust that, in view of the recent catastrophe, the Government will no longer hesitate to accede to the appeals which have been made to it by the British Association and the Commissioners on Lights.

THE HEALTH OF KING LEOPOLD.

WE regret to learn from continental sources that M. Langenbeck has not been more successful than M. Civiale in restoring the King of the Belgians to a state of health and comfort. Various statements have been circulated of an incorrect character as to the particulars. Without referring to any of these, we may say that the success of M. Civiale in crushing the vesical calculus with which the King is afflicted was only partial, and after several sittings considerable irritation still existed. The bladder itself seemed free from fragments, but the symptoms continued. Subsequently, when M. Civiale discontinued his visits, the aid of M. Langenbeck was obtained. After various efforts on several occasions, it is understood that this surgeon has not succeeded in removing the source of irritation. Mr. Henry Thompson, of University College Hospital, has now been summoned to this difficult case. We believe that it is probable that Mr. Thompson's stay may be somewhat protracted. Where men so eminent have not been successful, it may well be that our countryman will be unable to command a better result. But the present summons is a gratifying testimony to the skill and erudition which he undoubtedly possesses; and everyone will desire, for the sake of his distinguished and much-loved patient, he may be so fortunate as to remove the offending fragment and relieve the sufferings occasioned by it.

THE MEDICAL COUNCIL.

As we lately announced, the General Council of Medical Education and Registration of the United Kingdom will meet on Monday next, the 25th instant. We cannot say we anticipate that this announcement has been, or will be, read with any remarkable feeling of interest or excitement. That body has not shown itself to possess the power and the energy which were attributed to it when first formed. It has done very little, and does not, at present, seem likely to signalize itself by any important or memorable act. Probably a few notorious delinquents will be expelled, whose cases have already been decided elsewhere. Statements will be made with reference to the Pharmacopœia, and explanations given of the unavoidable delay which has characterized its production. Little is expected at present from the Council; and, probably, it will not exceed that limit.

Correspondence.

"Audi alteram partem."

DR. HUGHES BENNETT'S LECTURES.

To the Editor of THE LANCET.

SIR,—Dr. Hughes Bennett's answers to my last letter* are somewhat aside the tenor of my remarks. I am neither supporting nor opposing the old cell-theory. I am merely endeavouring to point out that the mode in which vibrionce are formed cannot be quoted as an instance in proof of the molecular theory; and also that the granular condition of a cell at certain times of its life is no proof of its origin from a molecular

* See THE LANCET, pp. 339 and 368.

state, for reasons which I have pointed out, and which appear to me conclusive. I believe it is admitted, even by the supporters of the old cell-theory, that the fact of conjugation is indisputable; and, as I said before, I am prepared to admit that fusion may not be impossible amongst molecules; but I may perhaps be excused if I remind Dr. Bennett that an admission of the possibility of the truth of a proposition is a very different thing from an admission that a particular instance is the proof of it.

Dr. Bennett refers me to his answer to Dr. Beale in the *British Medical Journal* of Feb. 28th for the reasons why he considers vibriones an instance supporting his theory. I had before and have now again considered the arguments there shown, and have endeavoured to reconcile them with my own observations, but I confess that I have been unable to do so, nor can I see anything to support his views. For Dr. Bennett says in one of his lectures that first of all, in the formation of tissues, we have a fluid state; next a molecular state, which is produced by precipitation from that fluid; after and from these molecules the various tissues.

Now I cannot find from his account that these molecules fulfil these requirements, for in no part is it mentioned whence they arise; and yet in any case and on any theory it is highly important that their origin should be determined. I think, however, everyone will admit that they arise by one of two modes: either, 1st, by a rearrangement of the elements of the decomposing fluid—that is, by spontaneous generation; or, 2nd, by being deposited from the air without. Concerning the former, I do not gather that Dr. Bennett holds any such theory, and consequently need not allude to it further. We will therefore consider them as derived from without—that is, deposited from the air.

It will be apparent that they have their origin in some definite source. What origin? This, it appears to me, is the essential portion of the inquiry; because much of the value of their mode of behaviour hereafter depends upon what they are, notwithstanding their minuteness. How, I ask, are we to arrive at the knowledge of all that they are unless we can trace their derivation?

I think few will disagree with me when I say they must have arisen (that is as far as our most extended theories help us) either, 1st, as a granule from a fluid, as I have pointed out Dr. Bennett requires as the starting point of his theory; or, 2ndly, as a mass separated from some old cell which has broken up; or, 3rdly, by the more formal process of segmentation.

Of the first it is plain we have no proof whatever; and as the second and third do not fulfil the necessities of the molecular theory, I maintain that as far as these vibriones are concerned the molecular theory is *non-proven*. If it is insisted that it is so, then, I reply, only by "spontaneous generation," to which conclusion, as I remarked before, I do not think Dr. Bennett intends to bring it.

Which explanation shall we accept? For myself there appears no difficulty. We shall, if I mistake not, find a solution by watching both the formation of vibriones and comparing it with the mode adopted by vegetable cells in the progress of their development from the single globular cell to that of filament.

This, as I remarked in a former letter, I have already brought forward in the *Microscopical Journal* while on the Diamorphosis of Lyngbya. But I may here again repeat an abstract, the more so as further observations upon kindred growths have quite confirmed them.

It is as well that I should state here, that whether we are agreed upon the exact structure of these minute masses of vegetation,—whether we assert they have a cell-wall or not,—there is no doubt but that they increase in size by ordinary growth; neither is there doubt that they have the power of segmentation; and further, that both these processes can in varying degrees co-exist. I mention this because Dr. Bennett makes remarks in the letter referred to which would imply that he was not aware of it, at any rate in its full force; for instance, he says: "If the molecules divide, how is it that filaments form at all?" If both these properties be not granted to vegetable cells, and to these vibriones also, then, of course, I can proceed no further. We disagree completely on the premises, and our arguments would not bear on each other. But if these are granted,—and I suspect they will not be denied,—then the explanation of the appearances seems to be only in accordance with the every-day appearances of the growth of gonidia, of filamentous vegetations, and the laws of filamentous growths. I know nothing in these vibriones at all dissimilar.

The mode of growth in these vegetations is this: A cell continues to segment till the size of the divisions may be reduced to an exceedingly minute body, cell, molecule, or whatever it pleases others to call it. When so small it is very difficult, even with high powers, to determine whether there be a cell wall or not. I am inclined, however, to believe that there is only an increased density on the external surface of the homogeneous mass of protoplasm. Watch these molecules. Some increase in size, and gradually resume the parent form, a cell with granular contents, nucleus and all—an orthodox cell; others become oval; others elongate to many times their breadth, but sooner or later one or more dissepiments appear, and a jointed filament is the result. These segments sooner or later redivide, and thus we have varying appearances, dependent upon the relative frequency of segmentation compared with the power of linear growth. This can be seen by anyone patiently watching these cells, and in many others under conditions imitating natural conditions. Dr. Bennett will, I think, find that while this is the law by which filamentous formation and growth is governed, it explains all his difficulties as to the form and size of the bodies he has depicted in his woodcuts. He must also recollect that filaments have a power of reverting to the single globular cell, or gonidium, at any time during its life; that it exercises this function somewhat capriciously, and thus we have the moniform appearance which is the commencement of the process of separation, which, however, may rest there, or proceed to final separation. The cells thus separated may directly segment by the binary form, or develop into filaments, and so we have growth in all stages and varieties. I believe this is the answer to Dr. Bennett's question, "How he (Dr. Beale) explains the formation of filaments I do not know."

I may also ask—If a jointed filament is to be produced from a round cell or mass of vegetative protoplasm, what plan is simpler and more in accordance with the known laws of vegetable cell-formation? As far as my own observations have extended, I have never in these phases of cell-growth seen anything like fusion, either to produce a globular or filamentous form. But, even had I done so, I see no *proof* of the molecular theory in it, because it has not been shown that it has just been precipitated from a fluid, as is required by the theory; and if these small bodies are the result of segmentation, then its coalescence would be rather a conjugation—at least a very different condition from coalescence of granular matter recently precipitated from a fluid in the midst of living tissues.

Hence I maintain that these vibriones are no proof whatever of Dr. Bennett's molecular theory. If he will insist that they are, then I again urge that it can only be by the help of another theory—namely, spontaneous generation. Will Dr. Bennett ask its assistance?

Dr. Bennett has also read my remarks on uterine fibres rather hastily. When I pointed out its action, not only during the whole of pregnancy, but also in the unimpregnated state, he objected that the latter was a new fact in physiology; upon which I assured him it was not so to those who had opportunities to view its action, and referred him to a published opinion. His rejoinder is, "It is new—in the normal state." As I made no qualification on this point, his answer admits the truth of my remarks. However, I will again join issue and say, "Even in the normal state." Perhaps the labour-like pains of dysmenorrhœa might suffice as an instance.

J. BRAXTON HICKS, M.D. Lond., F.R.S.

Wellington-street, London-bridge, April, 1863.

THE EXAMINERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editor of THE LANCET.

SIR,—I have read with much interest Mr. Heath's letter concerning the examiners of the Royal College of Surgeons of England, and the numerous replies it has called forth; and as an old Edinburgh student, and one who has undergone the examinations here and in London also, I have thought that a Scotch opinion of the London examiners, at this their time of trial, would not be out of place.

The general opinion here is, that the examiners in London are—and I can assert it without fear of contradiction—sharp, practical men, quite at home with their subjects, and simply desirous of testing the student's knowledge of those practical points which he must, in some way or other, acquire before ever he can practise surgery with success. Of course they possess the natural quickness of speech and demeanour common to their countrymen, which, though it may tell against us Scots, who think faster than we speak, can have little effect upon the English candidate, who is quite accustomed to it.

I do not intend to deny that we in the North are ignorant of the name of Mr. Cæsar Hawkins and his alleged peculiarities; and in all the cases of rejection (with which I am acquainted) of Edinburgh students, the failures have been attributed to the decision of this gentleman; but in all these cases I have also found that there have been fierce (very fierce in some cases) disputes about mere words between examiner and candidate, and we all know that some examiners cannot bear in the slightest possible degree to be corrected. What one of my Edinburgh readers does not know of a certain famous professor who, as he pleases, will make the wretched candidate confess to some favourite doctrine in pathology or medicine? I think my English friends have no reason to find fault with the examiners at the College of Surgeons of England, as more severe are not very difficult to be had. I see no reason to alter the opinion expressed by the late Albert Smith, "that the inquisitors are altogether a gentlemanly set of men, who are willing to help a student out of a scrape rather than 'catch question' him into one."

I have thus, at the request of a number of students and practitioners, given you our opinion of these gentlemen; and we take this opportunity of bearing testimony to the kind and gentlemanly treatment we received at the hands of the examiners of the Royal College of Surgeons of England.

I am, Sir, your obedient servant,

Edinburgh, May, 1863. M.D. Edin.

I enclose my card.

To the Editor of THE LANCET.

SIR,—The correspondence now going on with reference to the overbearing conduct of the examiners of the College of Surgeons of England induces me to call your attention, and that of your readers, to the "bumptiousness" of the Council itself, as exhibited in my case.

In possession of three medical diplomas, I found it desirable to obtain a surgical licence, and my papers being some lost (possibly) and in a far distant city, I begged the College to accept my diplomas as vouchers for my having gone through the required curriculum. On speaking to the President, in company with the Secretary, the latter gentleman (answering, I presume, for the Council) replied that the certificates must be produced. I offered to procure duplicates of the certificates of the various professors for all the necessary lectures, and pointed out that the obtaining of either of my medical degrees necessitated the requisite amount of hospital attendance. But the Secretary stated that candidates for medical diplomas had only to produce certificates of clinical medical, and not of clinical surgical, attendance. I then reminded him that all hospital certificates ran to this effect—"has attended the clinical medical and clinical surgical practice," &c., and that the one is never mentioned without the other. To this the reply was, that this fact was well known to the College, but that they chose to take technical advantage of the fact that medical corporations did not require all the clinical surgery mentioned in the certificates presented.

What may be the object sought by the Lincoln's-inn gentry in refusing gentlemen similarly circumstanced to myself—for I presume mine is not a solitary case—it is hard to tell; the result is, of course, that the Colleges of Edinburgh or of Dublin pocket the fees and issue the desired licence, and one in all respects equal to that of the London body. I think, Sir, that it would be well that the professional public should, by expression of their opinion, form a tribunal to which even the mighty College of Surgeons of London must bow, and I submit the case for this purpose only.

May I also point out, through the medium of THE LANCET, a fact with which I doubt whether very many candidates for surgical licences are acquainted—namely, that the Royal College at Edinburgh issue a licence to practise midwifery to every successful candidate for their diploma. Surely this is a step in the right direction, and one which it would be advisable for the others to follow, instead of demanding extra fees for the certificate of a branch of the profession which every surgeon is called upon to practise. In addition, I can truly say that a more courteous Court of Examiners I had never the pleasure of meeting, and I have had to appear before six.

I am, Sir, yours obediently,

May, 1863. W. T.

To the Editor of THE LANCET.

SIR,—In reference to the correspondence brought forward in your journal of Saturday last regarding the examinations at the College of Surgeons, and the conduct of the examiners, especially that of Mr. Hawkins, I have to inform you that I recently passed the first professional examination, and was examined by Mr. Hawkins, to whose gentlemanly and courteous behaviour I have much pleasure in bearing the highest testimony. I must candidly admit that the examination is very severe, but I am sure that no student who is properly prepared need fear any questions put to him. I therefore beg to corroborate the statement of your correspondents, "J. T. J." and "A Third-year's Student;" and am glad to say that I am acquainted with many who bear out its correctness.

I am, Sir, yours obediently,

May, 1863. A GLASGOW STUDENT.

To the Editor of THE LANCET.

SIR,—I was very much surprised at the appearance of Mr. Heath's note in your impression of the 9th. When I passed the College of Surgeons in 1856, I could not help remarking the gentlemanly and kind treatment paid to me on that occasion by the whole Court of Examiners. Mr. Cæsar Hawkins, in particular, was most courteous on the evening I had the honour of having the membership conferred on me.

I quite agree with your correspondent, "A Third-year's Student," that if a student is well prepared he need not fear any of the examiners.

The injustice done to Mr. Hawkins, and the importance of a thorough ventilation of the subject, will, I hope, be an apology for troubling you. I am, Sir, yours &c.,

J. C. B. SMALLMAN, M.D., M.R.C.S. Eng., &c.

Willingham, Gainsborough, May, 1863.

To the Editor of THE LANCET.

SIR,—As I had the pleasure of being examined in surgery at the College by Mr. Cæsar Hawkins in January, 1861, will you allow me to state that no examination could have been conducted in a more gentlemanly or considerate manner. I am satisfied that many who were at that time my fellow-students formed the same opinion of Mr. Cæsar Hawkins's unimpeachable character as an examiner.

I am, Sir, yours respectfully,

May, 1863. BARTHOLOMÆUS.

DR. MURCHISON'S WORK ON FEVER.

To the Editor of THE LANCET.

SIR,—My attention has been directed to a misprint in my work on Fever. At page 471, where the characters of the eruptions of typhus and enteric fever are contrasted in a tabular form, the distinguishing characters under the head of No. 8 have been accidentally printed in the wrong columns. It is the eruption of typhus which appears on the fourth or fifth day of the fever, and that of enteric fever which rarely appears before the seventh day. Although these facts are clearly indicated at pages 117, 131, 457, and 470 of the work, a casual reader might carry away an erroneous impression from merely referring to the table in question. As the point is of some importance, I beg those of your readers who possess the book to make the necessary correction. A note pointing out the error will be inserted in all copies of the book sold after this date.

I am, Sir, your obedient servant,

Wimpole-street, May, 1863. CHARLES MURCHISON, M.D.

ASSISTANT-PHYSICIANS AT KING'S COLLEGE HOSPITAL.

To the Editor of THE LANCET.

SIR,—It is a curious fulfilment of your prognostications respecting the appointments at King's College, that the Council should have appointed as assistant-physician for diseases of women and children a gentleman who is neither a physician nor a graduate in medicine; for Mr. E. Day is not a M.B. Lond., notwithstanding the formal announcements to that effect which have appeared in the public journals.—Yours obediently,

May, 1863. A LOOKER-ON.

INFORMATION SOUGHT BY THE FRENCH AUTHORITIES.—M. Jaccond, professor at the Paris Faculty, has been entrusted with a very interesting medical mission. He is now, by order of the French Government, at Vienna, where he is examining the medical schools and all the institutions connected with the teaching of medicine. He is to visit the whole of Germany for the same purpose, and report to the medical authorities at home.

MEDICAL TRIALS.

COURT OF BANKRUPTCY, MAY 15TH.

(Before Mr. Commissioner FANE.)

IN RE RUSSELL.

THE bankrupt, Annie Russell, who described herself as a "professor of music, and spinster," of 24, Cottage-grove, Peckham, and elsewhere, applied for her release from custody. It appeared that the bankrupt was the unsuccessful plaintiff in the cause of "Russell *v.* Adams," and that she had been arrested for £315 costs incurred by Mr. Adams in defending the action. She stated that she had been about three weeks in custody.

Mr. WILD, for Mr. Adams, opposed the application. He said the total expense incurred by Mr. Adams in his defence would be £1000. The defendant had been obliged to bring a vast amount of evidence from Holyhead and elsewhere, with a view of showing that on former occasions the bankrupt had fixed charges of breaches of promise of marriage upon clergymen and other persons in order to extort money. He (Mr. Wild) contended that Mr. Adams had been the victim of a gross conspiracy, and that the Court would not assist the bankrupt in obtaining her release from custody.

The bankrupt, who gave her evidence in a somewhat confident tone, said,—It is quite true that the verdict was not exactly for me, but my solicitor applied to Messrs. Wild and Barber for leave to examine Mr. Adams and myself as witnesses upon the trial, in order that the truth might be established; but they refused to give permission, otherwise the verdict would, in my opinion, have been very different.

The COMMISSIONER.—The verdict was against you?

The Bankrupt.—Yes; but if Mr. Adams had not placed himself in the position he would not have incurred the expense. From experience he might have known that it was rather dangerous to trifle with the affections of a lady.

The COMMISSIONER. — I see that in the declaration the damages are laid at £3000.

Mr. WILD.—Yes, and the defendant a married man with a large family.

The COMMISSIONER.—I do not think I can release the bankrupt until she has been four months in prison. It is a monstrous case.

The Bankrupt.—Very well; I was informed yesterday that you would prejudge the case.

The COMMISSIONER.—I do not know how I could prejudge the case. Until to-day I never saw either plaintiff, defendant, judge, or jury. I cannot release the bankrupt until she has suffered four months' imprisonment.

The bankrupt was then removed, his HONOUR adding (with a smile),—I hope she will not sue me. (A laugh.)

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND. — The following gentlemen, having undergone the necessary examinations for the diplomas, were admitted Members of the College at a meeting of the Court of Examiners on the 19th inst.:—

Burford, Henry Hummerston, Hamilton-terrace, St. John's-wood.
Clarke, John Chaundy, Brill, Bucks.
Coe, Samuel Jones, M.B., Oxford-street.
Coss, Tregeana Biddulph, Newington-place.
Henderson, Roderick William, Lower Hallsford, Middlesex.
Hyatt, Brownlow North, Shepton-Mallet.
Johnson, Robert Maxwell, Kaffraria.
Jones, David, Bala, North Wales.
Jones, William, Pwllheli, Carnarvonshire.
Jones, William, Carmarthen.
Mahony, Edward, Richmond-road, Dalston.
Mathews, John, Brecon, South Wales.
Miles, George, Gillingham, Dorsetshire.
Myers, Charles John, Tottenham.
Nichols, Robert Thomas, M.D., Greenwich.
Norgate, Louis Augustus, East Dereham, Norfolk.
Sheen, Alfred, M.D., Leicester.
Smithwaite, Sagar V., Burnley, Lancashire.
Thomas, Evan, Liverpool.
White, Charles, Newbury, Berkshire.
Williams, David Thomas, Llangeitho, Cardiganshire.
Wright, Joseph Brampton, Great Yarmouth.

The following gentlemen were admitted Members on the 20th inst.:—

Adamson, Arthur Ernest, Dublin.
Battersby, Charles Henry, Dublin.
Butt, William Frederick, Gloucester.
Davis, Henry Robert, Addison-road, Notting-hill.
Dukes, William P., Brixton.
Evans, David, Barmouth, North Wales.
Goodair, Thomas Henry, Hull.
Hawkes, Anthony Mann, Gloucester-street, Queen-square.
Kempthorne, Henry Law, Wedmore, Somerset.
Kiernander, William Coleridge, Calcutta.
Langston, Thomas, Manchester.
Lawrie, John Douglas, Bradford.
Lawton, Frederick, Chiddingfold, Surrey.
Matthew, Alfred John, London-road, St. John's-wood.
Mence, William Henry Dixon, Cambridge.
Nicholson, John, Silloth, Cumberland.
Price, Charles Richard, Haywater.
Rogers, Maurice Cohen, New Burlington-street.
Thomas, William Robert, Manchester.
White, Thomas Charters, Upper Eccleston-place, Belgravia.

[In the list published in THE LANCET of the 9th inst., the name of GEO. FINCH JENNINGS WORTHINGTON, of Dover, Kent, was accidentally omitted as having passed on the 6th inst.]

APOTHECARIES' HALL.—The following gentlemen passed their examination in the Science and Practice of Medicine, and received certificates to practise, on the 14th inst.:—

Boulton, Albert Edward, Horncastle.
Clapperton, George, Lower Broughton, Manchester.
Dykes, William Astly Sherratt, Londesbrough, Yorkshire.
Elliott, George Hurlstone, Chichester, Sussex.
Hall, Samuel, Belper, Derbyshire.
Norris, George Robert, King's College.
Parks, Charles, Queen's College, Birmingham.
Rudyard, Alfred Thomas, Bexhill.
Spence, James Atkinson West, Bedale, Yorkshire.
Woolley, Thomas Starbuck, Codnor, Derbyshire.

The following gentleman also on the same day passed his first examination:—

Armstrong, Henry Edward, Newcastle-on-Tyne.

UNIVERSITY OF LONDON. — On Wednesday, the 13th inst., the following degrees were conferred:—Doctors of Medicine: Charles Hilton Fagge, Guy's Hospital; John Henry Galton, Guy's Hospital; Morell Mackenzie, London Hospital; Walter Basnett Ramsbotham, University College; Joseph Rutter, University College; Robert Bowie Walcott, St. Thomas's Hospital. — Doctor of Science: Alexander Crum Brown (Chemistry), University of Edinburgh.—Bachelors of Medicine: Richard Dawson and Edward Thomas Tibbits, University College; Frederic Marsdin, King's College; Henry Colley March, St. Thomas's Hospital; Horace Jeaffreson, St. Bartholomew's Hospital; John Bayldon, Surgeons' Hall, Edinburgh; William Dale, Leeds School of Medicine and Middlesex Hospital; Fredk. Stockwell, St. George's and Bath United Hospitals.—Bachelors of Science: Rayner Winterbotham, University College; William Howse Groser, King's College; Charles Barnes Upton, Manchester New and University Colleges; William Laut Carpenter and Gustav Knecht, private study.

THE WESTMINSTER HOSPITAL.—On the 1st of June the governors will proceed to elect Dr. Gibb an assistant-physician, his opponent, Dr. Willis, having retired from the contest.

THE BALLYMENA POISONING CASE.—By order of the Crown the further prosecution of this case is abandoned. Dr. Courtenay has been released from his recognisances.

THALLIUM.—The largest ingot yet produced of this new metal, discovered by Wm. Crookes, Esq., was exhibited at the Royal Institution on Friday the 1st instant. Its weight was 5963 grains.

UNIVERSITY OF ST. ANDREWS.—A vacancy has occurred in the Chair of Chemistry and Anatomy in the United College, St. Andrews, by the resignation of Dr. George Edward Day, owing to ill-health. The patronage is vested in the University Court.

THE INDIAN MEDICAL STAFF.—Sir Charles Wood has officially announced that the state of the Medical Establishment connected with the Indian army is under consideration, and that it will be placed on an equality with that of Her Majesty's British army.

THE FRENCH CONSCRIPTION.—The year's conscription of 100,000 men, which is just over, shows, it is said, a large increase in France in the number of the sickly and the deformed, of the class who are below even the small stature of the approved conscript.

SOCIETY FOR THE RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—This Society held its seventy-fifth annual dinner on the 20th instant, Mr. Stone, President, in the chair. Nearly eighty gentlemen sat down. The subscriptions amounted to about £300.

UNIVERSITY COLLEGE HOSPITAL.—We are glad to learn that the governing body of this institution are no longer to be solely elected by the Council of the College, and that the whole arrangements of the hospital are to be put on a new and more liberal footing. From henceforth only one-third of the committee of management are to be appointed by the Council; the remaining two-thirds are to be elected at the annual meetings by the general voice of the governors. The hospital is £7000 in debt, and to meet this extraordinary efforts are now being made. The Queen has been graciously pleased to head the donation list with £100; and it is expected that at the dinner, which is to be held at the Albion Tavern on Tuesday, June 2nd, under the presidentship of Lord Brougham, a large portion of the debt will be liquidated, it being anticipated that the attendance on this occasion will be more than usually great.

ETHNOLOGICAL SOCIETY.—At the general anniversary meeting of this Society held on the 19th inst.,—John Crawfurd, Esq., President, in the chair,—the following gentlemen were elected office-bearers for the ensuing year:—President: John Lubbock, Esq. Vice-Presidents: B. Botfield, Esq., M.P.; John Crawfurd, Esq.; Robert Dunn, Esq.; and Lord Talbot de Malahide. Hon. Treasurer: F. Hindmarsh, Esq. Hon. Secretaries: Thos. Wright, Esq.; and F. Galton, Esq. Hon. Librarian: L. J. Beale, Esq. Council: Luke Burke, Esq.; Professor Busk; T. F. D. Croker, Esq.; Sir A. W. Clavering, Bart.; H. Christy, Esq.; J. Dickinson, Esq.; T. Hodgkin, Esq.; Prof. Huxley; David King, Esq.; Malcolm Lewin, Esq.; Joseph Mayer, Esq.; W. Napier, Esq.; C. R. Des Ruffières, Esq.; E. O. Smith, Esq.; Wm. Spottiswoode, Esq.; S. R. Solly, Esq.; Dr. Tuke; Stephen Ward, Esq.; and S. Wood, Esq.

HOUSE OF COMMONS.—The Vaccination (Ireland) Bill was read a third time, in the House of Commons, on Monday evening, and passed. On Tuesday the Lord Advocate obtained leave to bring in a Bill to make provision with regard to vaccination in Scotland.—Lord Raynham asked the right hon. gentleman the Vice-President of the Committee of Education whether Her Majesty's Government had received Professor Gamgee's report on the traffic in diseased meat; and, if so, whether there was any objection to it being laid upon the table of the House. Mr. Lowe said the report had been received, and he hoped it would be on the table very shortly.

THE BONE CONTROVERSY.—A letter appeared in *The Times* of Thursday from Dr. Falconer, giving, in brief, the result of the conference between English and French *savans* as to the authenticity of the bones and flints recently exhumed at Abbeville. The English deputation agreed that the relics had been disinterred as represented, and that there was no reason to suspect any bad faith, or any attempt at deception. But the great point as to the antiquity of the remains was left unsettled so far as the majority of the English commissioners were concerned, the members reserving the expression of their opinion until further evidence should be adduced.

CONVERSAZIONE.—Dr. Corrigan, as President of the Royal College of Physicians, Dublin, gave a conversazione on Saturday, the 16th instant, at his residence in Merrion-square, which was numerously attended.

CINCHONA IN JAVA.—The Dutch government, having prohibited the culture of opium, has wisely favoured the production of the cinchona, imposing upon the planters such regulations as are necessary to the preservation of the trees.

INCREASED EXPENSE OF PAUPER LUNATICS.—At the last quarterly meeting of the Bedford Town Council, the clerk reported the increased expense of the Borough pauper lunatics, and attributed it to the operation of the new law. He said that the matter had been represented to the Home Office.

SMALL-POX IN DUMFRIES.—At a meeting of the authorities of Dumfries, held on Thursday, the 7th instant, at which the medical gentlemen of the place were present, it was resolved to forward a representation of the state of the town to the authorities at the War Office, recommending that the embodiment of the militia be delayed until the town is in a more healthy condition *quoad* small-pox.

BRAIN OF AN IDIOT.—At a meeting of the Anthropological Society, May 12th, John Marshall, Esq., F.R.C.S., Fullerian Professor of Physiology at the Royal Institution, read a paper on the brain of an idiot boy, aged twelve. The brain weighed eight ounces and a half, being one ounce and a half lighter than that so well known as Gore's case of an idiotic female aged forty.

THE PHARMACEUTICAL SOCIETY.—A brilliant soirée was given at the rooms of the Society on Wednesday evening. There was a large attendance of members of the Society and of guests of the medical profession. There was a very great display of highly interesting objects.

SMALL-POX IN MARYLEBONE.—The vestry of Marylebone, in addition to the arrangements already made to provide for the cases at present existing, are devising methods to meet the emergency, if the disease should spread with increased violence.

DR. REID AND THE AMERICAN MILITARY HOSPITALS.—The United States government, which had engaged Dr. Reid to superintend the ventilation and other sanitary arrangements of the military hospitals now being erected, is deprived of the services of that gentleman, who died suddenly at Washington, on the 5th of April.

THE HOSPITAL FOR VENEREAL DISEASES AT LYONS.—The surgeoncy to this hospital is again offered for competition. The office is held for six years, the successful candidate entering upon his duties in January, 1870. In the meanwhile, he is given a certain number of beds, with the title of assistant-surgeon. The chief officer's salary is £48 a year, his assistant's £32.

THE ACTION OF EXPECTORATION.—In a paper on this subject, read at a recent meeting of the Glasgow Medical and Chirurgical Society by Dr. W. T. Gairdner, he advanced the theory that the bronchial tubes acted in a manner similar to that of the bowels, and ejected their contents by a peristaltic motion, which could as certainly be increased by appropriate medicines as could that of the bowels.

CERTIFICATE OF A NON-REGISTERED PRACTITIONER.—An inquest was recently held at Fulham on the body of a child, the daughter of Mr. Rowbotham, a member of the medical profession, though not in practice, and not registered. The certificate had been given by Mr. Rowbotham, Mr. Fyfe, of Brompton, who had attended her, having declined to give one. The cause of death appeared to be natural. The coroner told Mr. Rowbotham that if the child had been buried upon the faith of the certificate given by him, he being a non-registered practitioner, it might have been necessary for the body to be exhumed.

THE VENTILATION OF UNDERGROUND RAILWAYS.—The *Builder* remarks that the sulphurous fumes at some of the stations of the Metropolitan Railway are both unpleasant and unwholesome, and that the condition of the atmosphere cannot be good for passengers, particularly those who are in delicate health. On the numerous men who are employed, the effect of remaining for many hours in the bad air is highly injurious, and some of them say "more than a man can long stand." Some improvement has been made, but more effectual methods are required for the ventilation of the tunnels, and also for most of the stations.

HEALTH OF SCOTLAND.—The monthly return for the eight principal towns of Scotland shows that small-pox has now almost died out of Edinburgh, but has given some signs of becoming epidemic in Greenock. That formidable disease, diphtheria, is on the increase, and in the month of April caused forty-three deaths in the eight towns, their aggregate population being less than a third of the population of the London of the Registrar-General. The deaths from small-pox in the eight towns, in April, were only twenty. Of the 2173 persons who died in the month, half were under five years of age.

BIRTHS AND DEATHS DURING THE LAST QUARTER.—The births in England during the last quarter, ending March 31st, amount to 186,653. In the same period in 1861, they were about 173,000; in 1862 they were 182,000. The annual birth-rate of the quarter (births to population) was 3·698 per cent., being higher than the average, which is 3·594. It was higher than it had been during any quarter during the last ten years, except the spring quarter of 1834 and the winter quarter of 1860. The deaths in England, during the same period, were 128,534, against 122,192 in the same period of last year. The rate of mortality was 2·546 per cent., the average being 2·498.

Obituary.

JOHN CHALLICE, M.D., F.R.C.P. EDIN.

THERE are but few among those familiar with the polemics of the profession, or who do not devote themselves to the

ore strictly abstract elements of Medicine, who will not feel e deepest regret for the late able and energetic Officer of ealth for Bermondsey. In Southwark, which more especially aped the fruits of his exertions and his talents, this feeling, might be expected, has been altogether general; his funeral ermon, preached last Sunday evening, having been attended most of the parochial authorities and a vast concourse of is former patients and political adherents. He was born and as buried at Horsham, in Sussex. He died at his house, in reat Cumberland-street, from apoplexy, in his forty-ninth ear.

John Challice received his medical education at King's Colge, where he obtained many marks of distinction. One of hese was the medal for Medicine, in the competition for which e distanced many men very much his seniors. His tact in reatment and skill in diagnosis were even then remarkable, nd his great ability and sound sense secured for him the speial notice and regard of his teachers. Among them at that ime was Herbert Mayo, who entertained the warmest friendhip for Challice—a friendship which continued unabated till Mr. Mayo's death. There can be little doubt that had Challice n after-life devoted himself exclusively to the science of edicine, he would have earned an illustrious name. But ystematic work was altogether uncongenial to him, nor, inleed, was he fitted for the drudgery and routine of strictly rofessional life. Dr. Challice was a man of singular daring nd restless temperament. These qualities, which so often mpel men of ordinary powers to extravagance and calamity, ere in him wedded to such great ability, so clear a judgment, o much benevolence and unselfishness, as must, but for his udden death, have achieved for him a career exceptionally rilliant and useful. There are but few men whose opportunities promised to be so productive of benefit to the profession, nd so thoroughly to further its best interests. In Southwark e possessed a greater political influence than could readily be nderstood by those who are ignorant of the regard in which e was held by the working-classes, and of the support he ould bring to a candidate for their suffrages. Sir William Molesworth publicly avowed his obligations to him on more han one occasion, and the defeat of the late Mr. Apsley Pellatt was altogether owing to Challice's opposition. Indeed, rom having been but a partisan, Dr. Challice, two years ago, spired himself to the representation of the Borough. At the eath of Sir Charles Napier he received numerous requisitions rom the principal inhabitants of Southwark to allow himself o be put in nomination, an undertaking being given him to defray the expenses of his canvass; and, although opposed to Mr. Layard and Mr. Scovell, he would, most probably, have been returned, had he not at the time been smitten by paralysis.

Though failing to secure the chief object of his ambition—a eat in Parliament, Dr. Challice held a position scarcely less enviable to men of his stamp. He enjoyed an unlimited popularity, and was held, and most justly, to be one of the public benefactors of his time. To his labours in the field of social hygiene, while Chairman of the Board of Guardians, he owed his appointment as Officer of Health, one of the first of those made under the Metropolis Local Management Act. At the election for the city appointment, on the promotion of Mr. Simon to the post under the Privy Council, he stood within a few votes only of the successful candidate. He unquestionably gave the Borough cheaper gas and pure water, and his foremost position among sanitary reformers was, long before his death, fully recognised by more than one minister of state; nor was there any public measure or enterprise favouring the interests of Southwark carried out, during the last ten years, wherein his counsel was not in request, or which was not facilitated by his powerful advocacy.

Dr. Challice has been but too often charged with stepping out of the paths of his profession to follow the dictates of a restless ambition. But Challice was an exceptional man, to be judged by no ordinary rules. Indeed, it cannot but be confessed that that ambition was fully warranted by the highest abilities, nor can the least of his admirers but admit that whenever the interests of his profession would be subserved, he could be singularly generous and unselfish. In the recent severe contest for the Coronership of Middlesex, he gave a noble example of self-denial, for which he earned, and received, through us, the acknowledgments of the profession. It deserves to be mentioned that for several years he had, at considerable trouble and personal expense, organized a holiday at Whitsuntide for the artizans of Bermondsey, to the number of some thousands. These fêtes were continued for several seasons, until the panic in the leather trade put a stop to them, and were not the least of the means by which Challice became, and deservedly became, what he was—the most popular man on the south side of the Thames.

RICHARD QUILLER COUCH, ESQ., M.R.C.S.

This gentleman died on Friday, the 8th instant, from subacute inflammation of the lungs. He was the son of Mr. Jonathan Couch, of Polperro, the celebrated ichthyologist and naturalist, now publishing a "History of the Fishes of the British Isles." Mr. Couch was born in March, 1817, educated at Plymouth, and subsequently articled to his father, whose tastes he inherited; and, instead of being pupil and teacher, they soon became fellow-students, investigating the natural history of fishes, making observations on the crustacea, and examining the fossils of East Cornwall. Mr. Couch's researches into the metamorphoses of the crustacea were appreciated by naturalists generally, but more especially by Mr. Bell, who was then engaged in writing what is now the standard work on that subject; availing himself of the result of Mr. Couch's investigations, quoting him for many facts then new to science, and in the preface of his work bearing gratifying testimony to the originality and value of his discoveries. The geology of the Eastern part of Cornwall was explored with equal thoroughness by Mr. Couch, so that he became an authority on the fossils of the entire neighbourhood. Twenty years ago he wrote the third part of "The Cornish Fauna," published by the Royal Institution of Cornwall, his father writing the first and second parts. After passing his pupilage, he entered at Guy's, where he was alike esteemed by students and professors for the breadth and accuracy of his knowledge, and his great industry and general ability; gaining, in 1837, the medal for the prize essay for Ophthalmic Surgery, to which branch of his profession he continued particularly attached, enjoying ever afterwards a wide-spread reputation as an ophthalmic surgeon. In 1844 he settled at Penzance, where he gained a large and respectable practice. He was at once made one of the Secretaries and Curators of the Natural History and Antiquarian Society, for which he wrote a variety of papers on British Fishes, Crustacea, and kindred subjects. He became a member of the Royal Geological Society of Cornwall, then curator, and subsequently secretary and curator, contributing to its transactions many valuable papers, and annually writing an elaborate report of the progress made in examining the geology of Cornwall. As a proof of the repute Mr. Couch enjoyed as a man of science, and a naturalist especially, we may state that when the late Prince Consort printed, for private circulation, "The Natural History of the Dee Side," three copies only found their way into Cornwall, two of which were sent to the Couch family; one to Mr. Couch, of Polperro, another to Mr. R. Q. Couch, and the third to the Royal Institution. Mr. Couch was a member of the town council and alderman of the borough, and would soon have been mayor. As president of the Penzance Institute he delivered numerous able and interesting lectures on scientific and general subjects, and was an authority on everything relating to the county—its antiquities, mining, fisheries, and natural history. His publications on the diseases and mortality of miners were elaborate and striking, the result of many years' careful study; and, probably, did much towards creating the present Commission on Mining, before whom he gave valuable evidence. His multifarious knowledge on science, literature, and the arts, was such as seldom falls to the lot of one man, and he was as generous in imparting as he was able in acquiring it. His writings were highly appreciated in the United Kingdom and America, and he was held in high esteem by men of science on the continent of Europe. The deepest sorrow is expressed for his loss.—(*From a correspondent.*)

JOHN HATCH POWER, M.D., F.R.C.S.I.

The death of this able surgeon and anatomist has evoked deep and wide-spread expressions of grief among the profession. Dr. Hatch Power was well known to the English profession by his labours in respect to the Surgical Anatomy of the Arteries, as well as by his various contributions to the sciences of Anatomy and Surgery in the pages of the current periodical literature. He held the appointments of Surgeon of the City of Dublin Hospital and Professor of Surgery in the Royal College of Surgeons in Ireland. He had filled important professional positions in a manner which commanded the confidence and esteem of his pupils and colleagues. Dr. Power graduated as M.D. in 1838, and became Fellow of the College of Surgeons of Ireland in 1844. He was cut off in the course of an active career, at the age of fifty-six, in full possession of his faculties, leaving an honourable name.

LUME TIGHTLY BOUND

MEDICAL VACANCIES.

Anderson's University, Glasgow—The Chair of Medical Jurisprudence and Police.
Hendon Union, Stanmore District—Medical Officer.
Southwell Union—Medical Officer for the Workhouse, vice Mr. Warwick, resigned.

MEDICAL APPOINTMENTS.

W. H. ACKLAND, M.D., has been elected President for 1863-64 of the Devon and Exeter Benevolent Medical Society.

I. ASHE, M.B., has been elected Medical Officer for the Castleblayney Dispensary District of the Castleblayney Union, Co. Monaghan, vice W. N. Irwin, L.R.C.P.L., resigned.

D. DYER BROWN, M.A., M.D., has been appointed Assistant House-Surgeon to the South Staffordshire General Hospital, Wolverhampton.

T. BURNIE, L.R.C.P.Ed., has been appointed Junior Resident Surgeon to the Birmingham General Dispensary, vice J. T. Smith, M.R.C.S.E., resigned.

SIDNEY CHAFER, M.R.C.S.E., has been appointed Surgeon to the Metropolitan Dispensary and Charitable Fund, Fore-street, Cripplegate, vice L. Holden, F.R.C.S.E., resigned.

WM. FAIRLIE CLARKE, M.A., M.R.C.S.E., has been elected Surgeon to the St. George's and St. James's Dispensary, in place of Mr. Wm. Bird, resigned.

R. W. COX, F.R.C.S.E., whose period of service had expired, has been re-elected Surgeon to the Bristol General Hospital.

J. B. COWAN, M.D., has been appointed Professor of the Practice of Medicine in Anderson's University, Glasgow, in the room of Andrew Anderson, M.D., resigned.

G. COWELL, M.R.C.S.E., has been appointed one of the Attending Medical Officers of the Royal Pimlico Dispensary, vice Seys Ince, M.D., resigned.

M. E. CRESSWELL, M.R.C.S.E., has been appointed Medical Officer for District No. 4 of the Ashford West Union, Kent, vice J. Griffith, M.R.C.S.E., resigned.

J. H. FENEMAN, M.R.C.S.E., has been elected Medical Officer of Health for the Parish of St. George-in-the-East, vice R. Wilson, M.R.C.S.E., deceased.

J. A. HASLEWOOD, M.R.C.S.E., has been elected House-Surgeon to the Morpeth Dispensary, vice T. Gibson, L.S.A., deceased.

W. JOY, M.R.C.S.E., has been appointed Medical Officer and Public Vaccinator for the Ipburgh District of the Swaffham Union, Norfolk, vice R. B. Marriott, M.R.C.S.E., resigned.

C. G. KEMP, M.R.C.S.E., has been appointed Dentist to the Leicester Infirmary.

H. W. LANGDON, M.R.C.S.E., has been appointed Medical Officer for District No. 6 of the Devizes Union, Wilts, vice W. B. Pepler, M.R.C.S.E., resigned.

W. MUTCH, L.R.C.S.Ed., has been elected Medical Officer for the Orton District of the East Ward Union, Appleby, Westmoreland, vice J. Dinwiddie, M.D., resigned.

J. A. ORR, F.R.C.S.I., has been appointed Medical Officer for the Fleetwood District of the Fylde Union, Lancashire, vice E. Macmanus Daniel, L.R.C.S.I.

Dr. G. PADLEY has been elected Physician to the Swansea Infirmary.

R. PENTLAND, F.R.C.S.I., has been appointed Medical Attendant to the Constabulary at Drogheda, vice T. T. Fogarty, M.D., deceased.

J. P. PURVIS, M.R.C.S.E., has been appointed Surgeon to the West Herts Infirmary, Hemel Hempstead, vice E. Goddard, M.R.C.S.E., appointed Medical Officer and Public Vaccinator for District No. 1 and the Workhouse of the Leominster Union, Herefordshire.

W. R. ROBERTS, M.R.C.S.E., has been appointed House-Surgeon to the Birmingham and Midland Free Hospital for Sick Children, vice T. Burnie, elected House-Surgeon to the Birmingham General Dispensary.

R. SLADE, M.R.C.S.E., has been appointed Medical Officer for the Puddletown District of the Dorchester Union, vice T. Reynolds, M.R.C.S.E., resigned.

J. S. TUKE, L.F.P. & S. Glas., has been appointed Medical Officer for the Week St. Mary District of the Stratton Union, Cornwall, vice Mr. James Tuke, resigned.

MILITARY AND NAVAL MEDICAL APPOINTMENTS.

R. F. ANDREWS, L.F.P. & S. Glas., Staff Surgeon, has been appointed Surgeon to the 5th Lancers, vice Huish, M.D., who has exchanged.

J. C. ANNESLEY, Assist.-Surg. Bengal Service, Civil Surgeon at Jhansie, has been appointed Registrar of Deeds in that District during the absence on leave of Mr. W. R. N. James, or until further orders.

S. ATCHISON, Surg. 2nd Bengal Cavalry, has been appointed to receive medical charge of the Jail, Civil Station and Establishment, Dispensaries, and Police of Umritsur, from Assist.-Surg. Maclean, proceeding on leave on medical certificate.

F. O. BARKER, Staff Surgeon Bengal Service, has been directed to assume medical charge of No. 3 Battery 24th Brigade Royal Artillery, in addition to his other duties.

A. H. BEAMAN, M.R.C.S.E., Assist.-Surg. Madras Service, has been appointed to act as Zillah Surgeon of Tellicherry, during the absence of Assist.-Surg. Furnell on other duty, or until further orders.

T. BROWN, Acting Assistant-Surgeon R.N., has been appointed to the "Columbine."

A. F. CHURCHILL, Staff Assist.-Surg., has been appointed to do duty with the 18th Royal Irish at Secunderabad.

H. CLARK, M.D., Assist.-Surg. Bengal Service, has been directed to assume medical charge of the 5th Royal Horse Brigade and Artillery Division, consequent on the departure of Surg.-Major G. Harper, on leave.

C. S. CLOSE, M.R.C.S.E., Staff Assist.-Surg., has been appointed Assist.-Surg. to the 5th Foot, vice Whitty, promoted on the Staff.

H. COOKSON, L.R.C.P.Ed., Assist.-Surg. 104th Foot, has been directed to afford medical aid to the Brigade Staff at Bareilly, in addition to his other duties, during the absence of Assist.-Surg. F. Corbyn.

B. CRABBE, L.R.C.S.Ed., Surg. R.N. March 13th, 1863, has been appointed to the "Trident."

C. B. CRASKE, M.R.C.S.E., Surg. Madras Service, having completed twenty years' service in India, has been promoted to Surg.-Major under the provisions of the Royal Warrant of Jan. 13th, 1860, and G. O. G. No. 9 of Jan. 8th, 1861.

J. M. CUNNINGHAM, M.D., Assist.-Surgeon Bengal Service, Superintendent of the Central Prison at Meerut, has been appointed to officiate as Superintendent of the Government Press and Curator of Government Books, in the place of Dr. Walker.

F. W. DAVIS, L.K.Q.C.P.I., Surgeon R.N. April 16th, 1863, has been appointed to the "Alert."

F. W. A. DE FABECK, Assist.-Surg. Bengal Service, has been directed to do duty with the 10th Brigade Royal Artillery at Barrackpore.

W. DUNN, M.D., Surgeon R.N. Sept. 12th, 1854, has been appointed to the "Marlborough."

J. B. FLEMING, M.D., 1st Class Assist.-Surg. Madras Service, has been promoted to Surgeon, vice Forbes, retired.

M. C. FURNELL, Assist.-Surg. Madras Service, Zillah Surgeon of Tellicherry, has been appointed to act as Residency Surgeon of Travancore, during the absence of Dr. Ross on duty, or until further orders.

W. F. GOSS, M.D., in medical charge of Nya Doomka, in the Sonthal Pergunahs, has been appointed to the medical charge of Sumbulpore, vice Dr. N. Jackson.

J. F. GRAY, F.R.C.S.E., has been appointed Assist.-Surg. to the Northamptonshire and Rutland Militia.

J. HUDSON, M.R.C.S.E., Surg. R.N., has been appointed to the "Columbine."

H. HUISH, M.D., Surgeon 5th Lancers, has been appointed Staff Surgeon, vice Andrews, who has exchanged.

A. E. MACKAY, M.D., Surgeon R.N. Nov. 12th, 1852, has been appointed to the "Revenge."

S. MICHELL, F.R.C.S.E., has been appointed Surgeon to the Royal Cornwall and Devon Miners Regiment of Militia, vice Bullmore, resigned.

J. SHIELD, Acting Assist.-Surg. R.N., has been appointed to the "Alert."

Dr. A. WATSON, Surgeon R.N., has been appointed Staff-Surgeon of the Anglo-Chinese Expedition under the command of Capt. Sherrard Osborne, R.N., C.B.

T. B. WHITTY, L.R.C.S.I., Assist.-Surgeon 5th Foot, has been appointed Staff Surgeon, vice Reade, placed upon half-pay.

J. E. YOUNG, M.D., Staff Assist.-Surg. has been appointed Staff Surgeon, vice Williamson, M.D., appointed to the 64th Foot.

Births, Marriages, and Deaths.

BIRTHS.

On the 15th ult., at Meerut, the wife of Dr. J. Houston, officiating Durbar Surgeon, of a daughter.

On the 8th inst., at Lammas-street, Carmarthen, the wife of J. L. Williams, M.R.C.S.E., of a daughter.

On the 11th inst., at Queen's-row, Grove-lane, Camberwell, the wife of J. M. Lindsay, M.D., of a daughter.

On the 12th inst., at Dalry, Ayrshire, the wife of A. Blair, L.R.C.S.Ed., of a daughter.

On the 13th inst., at Burlington-street, Liverpool, the wife of James Lunn, M.R.C.S.E., of a daughter.

On the 14th inst., at Longsight Old Parsonage, Manchester, the wife of W. C. Matthews, M.R.C.S.E., of a daughter.

On the 15th inst., at Eastbourne, the wife of Arthur Whitefield, M.R.C.S.E., of a son.

On the 16th inst., at Haddington, the wife of W. Martine, M.D., of a daughter.

On the 17th inst., at Melville-terrace, Chatham, the wife of Chas. R. Kinnear, M.D., Deputy Inspector-General of Hospitals and Fleets, of a daughter.

On the 17th inst., at Haltwhistle, Northumberland, the wife of J. Hamilton Buchanan, M.D., of a son.

On the 19th inst., the wife of W. J. Corin, Surgeon, of Liskeard, of a son.

MARRIAGES.

On the 13th inst., at St. Bartholomews, Hyde, Winchester, C. C. Blades, M.D., of Newington-place, Kennington-park, to Mary Ann, second daughter of F. Bowker, Esq., of Larkhills, Winchester.

On the 13th inst., at Creeton, Lincolnshire, G. C. Sharman, M.R.C.S.E., of Wellingborough, Northamptonshire, to Ann, fifth daughter of the late Rev. W. W. Layng, Vicar of Great Harrowden.

On the 15th inst., at Westbury-on-Trym, J. B. Collyns, M.R.C.S.E., of Delverton, Somersetshire, to Anna Gordon, widow of the late Rev. E. Riley, of Englishcombe, Bath, and only daughter of the late A. Thomson, Esq., of London.

DEATHS.

At Grenada, West Indies, Arthur J. Frame, M.D.

On the 13th of March, T. Gibson, L.S.A., House-Surgeon to the Dispensary, Morpeth, Northumberland.

On the 6th of April, suddenly, at Washington, Dr. Reid, Medical Inspector to the Government Sanitary Commission there, well known in this country in connexion with the ventilation of the Houses of Parliament and other public buildings.

On the 10th inst., Robert Valentine, eldest son of Robert W. Ellis, M.R.C.S.E., of Bristol, aged 2 years and 5 months.

On the 10th inst., at Crick, Northamptonshire, where he had practised his profession for half a century, T. Osborne Walker, sen., Esq., Surgeon, aged 80.

On the 10th inst., E. Field, M.D., of The Oaks, Framlingham, late of the Royal Artillery, Justice of the Peace for the County of Suffolk.

On the 11th inst., at Deal, A. B. Cutfield, M.D., aged 47.

On the 13th inst., at Weymss-place, Edinburgh, J. Keith, M.D., aged 79.

On the 12th inst., at Pardovan, Linlithgowshire, Wm. Gray, L.R.C.S.Ed., of Kinross.

BOOKS ETC. RECEIVED.

Dr. Leared on Imperfect Digestion.
Dr. Fuller on Diseases of the Heart and Great Vessels.
Report of the North and East Riding of Yorkshire Lunatic Asylum.
Messrs. Grainger and Co.'s Observations on Wines.
Mr. J. Lightfoot on some Curious Properties of Camphor.
Report of the Manchester and Salford Sanitary Association.
Weekly Return of Births and Deaths in London.
Quarterly Return of Births, Deaths, and Marriages for Scotland.

Medical Diary of the Week.

SUNDAY, MAY 25 .....
- LOCK HOSPITAL, Dean-street, Soho.—Clinical Demonstrations and Operations, 1 P.M.
- ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM.—Operations, 1½ P.M.
- METROPOLITAN FREE HOSPITAL. — Operations, 2 P.M.

TUESDAY, MAY 26 .....
- GUY'S HOSPITAL.—Operations, 1½ P.M.
- WESTMINSTER HOSPITAL.—Operations, 2 P.M.
- ROYAL INSTITUTION.—3 P.M. Prof. Tyndall, "On Sound."
- ANTHROPOLOGICAL SOCIETY OF LONDON.—7½ P.M. Prof. Busk, "On Human Remains from Brick Earth at Chatham."
- ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF LONDON. — 8½ P.M. Mr. John Wood, "On Deformity of the Neck from a Burn; Tallacotian Operation."—Mr. Spencer Wells: "Ovariotomy twice performed on the same Patient." — Dr. Robert Lee, "On Induction of Premature Labour in Complicated Cases."

WEDNESDAY, MAY 27
- MIDDLESEX HOSPITAL.—Operations, 1 P.M.
- ST. MARK'S HOSPITAL.—Operations, 1 P.M.
- UNIVERSITY COLLEGE HOSPITAL. — Operations, 2 P.M.

THURSDAY, MAY 28 ...
- ST. GEORGE'S HOSPITAL.—Operations, 1 P.M.
- CENTRAL LONDON OPHTHALMIC HOSPITAL. — Operations, 1 P.M.
- LONDON HOSPITAL.—Operations, 1½ P.M.
- ROYAL FREE HOSPITAL.—Operations, 1½ P.M.
- GREAT NORTHERN HOSPITAL, KING'S CROSS.—Operations, 3 P.M.
- LONDON SURGICAL HOME.—Operations, 2 P.M.
- WEST LONDON HOSPITAL.—Operations, 2 P.M.
- ROYAL ORTHOPÆDIC HOSPITAL. — Operations, 2 P.M.
- ROYAL INSTITUTION. — 3 P.M. Professor Ansted, "On Geology."

FRIDAY, MAY 29 .....
- WESTMINSTER OPHTHALMIC HOSPITAL. — Operations, 1½ P.M.
- ROYAL INSTITUTION. — 8 P.M. Prof. Max Müller, "On the Vedas."

SATURDAY, MAY 30 ...
- ST. THOMAS'S HOSPITAL.—Operations, 1 P.M.
- ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1½ P.M.
- KING'S COLLEGE HOSPITAL.—Operations, 1½ P.M.
- CHARING-CROSS HOSPITAL.—Operations, 2 P.M.
- ROYAL INSTITUTION. — 3 P.M. Prof. William Thomson, "On Electric Telegraphy."

To Correspondents.

Mr. Wm. Bird.—However desirable in some cases it may be that the writer of a letter in a public journal should attach his name to his communication, there are others in which such a proceeding would bring injury and even ruin on the writer. No letter is published in THE LANCET without the name and address of the author being communicated to us. We commend to Mr. Bird the reply of "Junius" to Sir Wm. Draper respecting anonymous writing.

R. O., (North.)—The iodide of ammonium is formed by the action of iodine on the carbonate of ammonia. Thus obtained, its colour is red; but if zinc be employed in effecting the decomposition, the colour will be white. It may be given in the same doses as the iodide of potassium.

Dr. Myrtle, (Harrogate.)—The case will appear next week

Delta.—Virchow is a politician, and a member of the Prussian Chamber of Deputies. Ndlaton declined the proffered analogous appointment in France.

MYOPIA.

To the Editor of THE LANCET.

SIR,—I should feel obliged to any of the readers of your journal if they would answer a few questions for me on the subject of short-sightedness. There seems to be a great want of popular information on a defect so common, especially among the literary and upper classes. For instance, some physicians have assured me that "myopia" is a result of literary labours; others again have affirmed that the defect is a mechanical one; that no amount of reading would produce or alter it. That in all probability the ancients were as short-sighted as we are now, and that very likely Pericles would have worn an eye-glass if Athens had boasted a Negretti or a Zambra.

Again, it is asserted by some that myopia is incurable; by others that it can be mitigated or even cured by constantly looking at distant objects, and that in Russia this plan is successfully pursued.

Thirdly, it is a common saying that "short-sight is the strongest sight, and will improve with age." Now, I know many short-sighted persons who are also weak-sighted, and I could mention three or four eminent friends of mine at the bar, whose sight has either not improved or grown steadily worse with age.

Lastly, it is a question of great importance to know if the use of glasses is injurious, and if it is advisable for a person to use the power he can see best with, or one rather weaker.

There are many other questions I should like to broach on this interesting subject; but I fear I have already trespassed too much on your valuable space, and will now subscribe myself,

May, 1863. A MYOPIC CANTAB.

Sherborne, Dorset.—The inquiry which has taken place in this town into the conduct of Mr. S. White, the highly respectable and intelligent surgeon of the union, shall receive an extended notice in the pages of THE LANCET when the decision of the Poor-law Board upon the evidence adduced shall have been made public. A careful perusal of that evidence has impressed us with the conviction that the inquiry in the form which it assumed was not necessary. It is always matter of regret to find any portion of the clergy of a district in opposition to the medical attendant upon the poor. The clergy, above all other persons, have the fullest opportunities of knowing the anxieties, difficulties, and obstructions which a union surgeon has to contend against in the faithful discharge of his duties to the ratepayers and to the poor, and they are the last whom we expect to appear as accusers, except upon clear and unequivocal grounds. That they should lend their influence to the disparagement of a parochial medical officer upon unsatisfactory evidence is deeply to be deplored. Mr. White has practised his profession for forty years, to the great advantage of those who have been placed under his care. He is known to be a gentleman of humanity and skill, and no persons in the town of Sherborne are more willing, as was proved in the late inquiry, to bear testimony to this fact than the pauper population of the place. We can only at present reiterate our regret that Mr. White has been subjected to what we cannot help regarding as an injustice. We cannot believe that the reverend gentlemen who appeared as his prosecutors were actuated by any but the most honourable motives; but we do think that in instituting proceedings against a brother townsman, whose character hitherto has been without a stain or a reproach, they have committed a grave error of judgment. For the well-being of the poor there is nothing more essential than a cordial understanding between the clergy and the medical profession. They both see the indigent under the most trying circumstances—in the hours of sickness and of sorrow, when the physician of the body and the physician of the soul are capable of affording so much relief and consolation. When a case occurs in which this harmony is disturbed, it cannot but be a source of regret to every humane and intelligent member of society. Without anticipating the decision of the Poor-law Board, we may be permitted to say that so far as the inquiry went,—and it was a most searching and extended one,—Mr. White came out of the ordeal in a manner equally satisfactory to his friends and honourable to the profession of which he is a most estimable and worthy member.

M. D. (Lincolnshire) is thanked. The "precious document" is really beneath contempt.

G. G. (Manchester) shall receive a private note if he will send us his address.

THE LARYNGEAL ÉCRASEUR.

To the Editor of THE LANCET.

SIR,—In your impression of May 9th, Dr. Gibb describes an ingenious instrument, which he names a "laryngeal écraseur," and to his description of it he appends the following remarks as to other instruments used for the removal of polypi from the larynx:—"I was not unmindful of the instruments used on the Continent for the removal of polypi from the larynx; but how they could be introduced, with their enormous curve like a lithotomy sound, was to me an enigma. Moreover, none possessed the simplicity of my own."

By referring to the number of THE LANCET for November 9th, 1861, he and others of your readers will see that I described an operation in which a tumour was removed from the larynx by a laryngeal écraseur, simpler than Dr. Gibb's, and equally effectual. As this was made for me by Messrs. Weiss and Son in August, 1861, the readiness with which in 1863 they comprehended the nature of what Dr. Gibb so much desired may be partly accounted for by their previous experience.

I am, Sir, your obedient servant,

Peterborough, May, 1863. THOMAS JAMES WALKER, M.D.

One Puzzled.—Curari, wourari, curali, urali, and wourali poison are different names for the same thing. Our correspondent cannot do better than refer for a concise account of it to Mr. Hunter's Report on the Colonial Medicinal Contributions to the International Exhibition.

E., Ignoramus.—1. It is probable, if he could get to the seat of war, his services would be accepted.—2 and 3. It is not known.—4. Refer to our advertising columns.

Vigilia.—We do not know any work on Domestic Medicine that we can safely recommend. Such works are seldom to be consulted with advantage.

THE EFFECTS OF BEING "PLUCKED."

To the Editor of THE LANCET.

SIR,—I wish to call the attention of "the powers that be" to a regulation which is, in my opinion, most unfair.

Some time ago I was "plucked" in Medicine, &c., and within three months after, went in for examination in Anatomy, &c., to another body, and was requested to declare that I had not been rejected within three months. I honestly told them the truth. I was allowed to go up; but the fact was communicated to the Examiners. However, I passed, and was afterwards informed by an Examiner privately, that, although my answers had been above the average, I had a narrow escape on account of my former mishap.

Now, Sir, a man's passing should depend upon his answers alone, and not upon any previous circumstances whatever; and it is manifestly unfair to pluck a man because he has been plucked before, and let another pass who has not done at all better. In fact, the Examiners who pluck a man who has done as well as those they have passed commit themselves to a falsehood, as they publicly brand him as having done worse. Again, it is only the conscientious students, the minority always, who suffer from this rule. I was looked upon as a fool for telling them, and I had a hard struggle to do what was right, when perhaps, as a reward for my honesty, I might get plucked, and see the man with less candour and truth, and who had not done at all better, pass with flying colours. I remain, Sir, yours, &c.,

Morley's Hotel, Trafalgar-square, May, 1863. M. Z. T.

Mr. G. W. Locke, (New Brompton.)—It is to be regretted that the very objectionable paragraph was published. Such puffs do great injury to the profession. Mr. Locke may well say, "Save me from my friends."

Student.—Rubidium is a very rare metal. It is stated to exist in ordinary beet-root in the form of a chloride.

An Old Guy's Man, (Herefordshire.)—Meteorism is another term for tympanitis, and is used, like the latter, to denote the accumulation of air in the belly, whether in the peritoneum or intestines.

Philanthropos, (Halifax.)—We cannot recommend either of the persons named.

A Kentish Correspondent.—It is not usual for a physician to an hospital to place his private surgical patients in the hands of the house-surgeon to the institution to which he is attached. Such a procedure would be open to grave objection.

Dr. Stammer.—Biotina or Biotine is the name given by Monticelli to the anorthite found by him among the old lavas of Mount Vesuvius.

A Simple M.D., (Cheltenham.)—The Colleges of Physicians and Surgeons, Edinburgh, have united to issue a joint diploma.

Mr. Wm. Collins.—There is not so much danger from the accident as if the trunk generally was scalded. From the description of the case, we think there is every prospect of a good recovery.

"J. Bronchitis, M.D."—The note sent can appear only as an advertisement.

ON THE TREATMENT OF CONSUMPTION BY THE HYPOPHOSPHITES.

To the Editor of THE LANCET.

SIR,—Dr. Cotton's recent experiments are only a repetition of his former ones, with the time extended from a fortnight to a month. They are as invalid as the first.

He begins by asserting that the hypophosphites have no physiological action. If he will take an overdose, say four or five tablespoonfuls daily, of the syrup, he will soon find, to his very great discomfort, they produce such a state of plethora as to bring on epistaxis, or hæmoptysis, or bleeding from the intestines, either with or without symptoms of congestion towards the head or lungs. His principle is to give the hypophosphites for a month, then to leave them off to give some other substance, claiming for this second substance the merit of whatever improvement may continue after the suspension of the hypophosphites. This rests upon the assumption that the effect of the hypophosphites ceases as soon as the medicine is suspended, which is contrary to experience with regard to the action of all mineral substances assimilated by the organism. Upon the same principle Dr. Cotton would have the right to conclude that if a patient who has been vaccinated begins by taking carbonate of soda immediately after, and continues it for some time, his immunity from small-pox would be owing to carbonate of soda, and not to vaccination.

The most elementary principle of experiment is to distinguish and isolate as far as possible the different conditions upon which the result of the experiment depends, so as to ascertain those which really contribute to the result, and those which do not. Dr. Cotton is evidently acquainted with this principle; for not only does he not apply it, but wilfully and predeterminately violates it in every one of his experiments. If his object had really been to ascertain the true value of the hypophosphites in the treatment of consumption, the simple, rational, logical, and scientific plan would have been to take a series of patients in certain determinate pathological conditions, and to treat them with the hypophosphites until death or cure had ensued. During the same period another series of patients, selected as nearly as possible in the same pathological condition as the first, should be submitted to some other course of treatment. These two series of researches, if scientifically carried out, would have afforded more data for comparison, and allowed of some definite conclusion. But as Dr. Cotton's object was rather to play the part of advocate, and to find a plea against the efficacy of the hypophosphites, he has taken care to produce no well-defined and scientific results. He has, nevertheless, defeated the purpose he had in view, and produced a certificate in favour of the hypophosphites; for, according to his own showing, out of 12 cases (of which 2 are declared beforehand to be unpromising, thus reducing the number to 10), the hypophosphites were successful in 7 instances, producing improvement, and much improvement, and moderate improvement; the weight of the patients increasing in every instance, and in one or two to a great extent.

For the future I would ask Dr. Cotton, before he institutes any further experiments in therapeutics, to bear in mind the following question:—How many negative results in experimental science, obtained under variable or unknown conditions, are sufficient to overthrow one single positive instance, the character and condition of which have been scientifically determined? When he has thought of this question in all its bearings, he will have a better right to come forward as a therapeutist; for such a mode of proceeding in therapeutics as that followed by Dr. Cotton appears to me to have no more claim to be a scientific experiment than would be the fact of a man ignorant of chemistry going into a laboratory, and throwing half-a-dozen of the first substances he met with into a crucible, and calling that a chemical experiment. The hypophosphites have proved themselves to any impartial observer, even, as I conceive, in the hands of Dr. Cotton himself, to be medicines of the highest importance. Men of scientific attainments and practical experience prescribe them, and will, I have no doubt, continue to prescribe them, to the relief of patients suffering from one of the most intractable of maladies which afflict humanity. I remain, Sir, your obedient servant,

Avenue Montaigne, Paris, May, 1863. J. F. CHURCHILL.

To the Editor of THE LANCET.

SIR,—My attention has been called to Dr. Cotton's Report of Cases treated at the Brompton Hospital for Consumption by my Syrups of Hypophosphite of Lime and Soda. I consider that report so highly favourable to the use of the hypophosphites, that I am persuaded many hospitals, dispensaries, and public charitable institutions will be induced to adopt them as the basis of their treatment of phthisis.

To further as much as lies in my power and extend the use of these medicines, I beg to inform all those who are interested in the subject, through the medium of your journal, that I place gratuitously at the disposal of hospitals or other charitable institutions in England a supply of the syrups of hypophosphite of soda and lime, and pills of hypophosphite of quinine and of manganese, to the extent of two hundred bottles.—Yours respectfully,

Laboratory, Rue Castiglione, Paris, May, 1863. H. H. SWANN.

L. R.—Common resin is used in Australia in the treatment of gleet and gonorrhœa; and, combined with opium, belladonna, and equill, in that of the chronic and winter coughs of old and leuco-phlegmatic people.

Mr. W. Kelly.—In the present state of the law, there is no remedy for the abuse.

Messrs. Fletcher and Herbert.—If two or more well-authenticated cases of the person named practising as an apothecary could be adduced, the Society of Apothecaries would sanction proceedings against him in their name.

Iatros.—The anomaly is a disgrace to our laws.

An Interested Reader shall receive the information required if he will forward us his name and address.

Botanicus.—We believe that the experiments of Messrs. Lawes and Gilbert tend to show that plants do not assimilate nitrogen.

VACCINATION.

To the Editor of THE LANCET.

SIR,—The subject of small-pox, and the means of providing for its difficulties, being now under discussion by the sanitary authorities of the metropolis, I beg leave, as a public vaccinator, to give my opinion on the question at issue.

In a letter which appeared in a weekly publication about a twelvemonth ago, I fully expressed my views relative to vaccination. I suggested that paid inspectors, having access to the registries of births, should make periodical visitations in order to enforce the provisions of the Compulsory Act, and, whenever necessary, exact the penalty for neglect of vaccination. I would reiterate that suggestion a thousand times, and I now firmly maintain that until such means be adopted, vaccination will never be properly carried out. It is true that with many of the scum of society, having no fixed homes, some difficulties would present themselves; but with the majority of the population the plan would succeed. In fact there could be hardly any way of defeating it. I have one of the largest vaccinations in London, derived from a densely populated neighbourhood, and which I look closely after; but though I hunt them up like a bloodhound on the murderer's trail, I am often thrown out. An inspector, however, with *time* for looking to cases, could do all that is needful; and depend upon it, Sir, did an active and intelligent man set regularly to work in a district, but comparatively few, if any, children would remain unvaccinated. But as matters are at present, with the stupid supineness of authority, it is really shameful when we consider the number of children never vaccinated at all—boys and girls of all ages, from three years old up to eleven or twelve. We only want an epidemic like the present (when they rush in shoals to the stations) to make the discovery.

There is another element in the organization of a proper system of vaccination to be considered, and that is the *manner* of conducting it. The means may to a certain extent be supplied to vaccinators; but if the proper method of conducting it be attended with difficulties, the system is incomplete. Stations at the public expense should be secured, consisting of two rooms, a large room and a smaller one; the large room sufficiently spacious to accommodate all the women likely to assemble there with their children, while the smaller room should be appropriated to the vaccinator. The large room should be under the superintendence of an adroit person, who shall marshal the inmates properly—viz., put all the fresh cases on one side, and those already vaccinated on the other. The fresh cases to be entered by him in a book on their arrival, the name, age, residence, &c. &c.; while examinations of the vaccinated children from time to time would enable him to furnish the vaccinator with proper cases for lymph. When one child is done, to be immediately succeeded by another, and as fast as they are vaccinated sent directly away. Those cases which may have taken but indifferently, and not eligible to vaccinate from, to be at once dismissed.

By this plan, Sir, the practice of vaccination could be accomplished in an expeditious and perfect manner, instead of the slovenly and unsatisfactory way in which it is often performed at present.

I remain, Sir, your obedient servant,

J. G. GUERRARD, M.R.C.S.

Wyndham-place, Bryanston-square, May, 1863.

COMMUNICATIONS, LETTERS, &c., have been received from—Dr. Fuller; Dr. Murchison; Sir Ranald Martin; Dr. Hughes Bennett; Dr. Geo. Harley; Mr. I. B. Brown; Dr. Vintras; Dr. A Smith; Mr. Charles Williams; Mr. Fletcher, Bury; Mr. Dunne, (with enclosure;) Dr. Smallman, Willingham; Mr. Collins, Wincanton, (with enclosure;) Mr. Wildash, Hythe, (with enclosure;) Dr. Davies, Wrexham, (with enclosure;) Mr. Worthington; Mr. Leggatt, Eastry, (with enclosure;) Messrs. Arbuthnot and Co., Madras, (with enclosure;) Mr. Bird; Mr. Cranmer, Wrexham; Mr. Striedinger; Mr. W. Farnivall, Hatton; Mr. T. S. Fletcher; Mr. Walker, Blakesley; Dr. Brown, Wolverhampton; Dr. Williamson, (with enclosure;) Mr. Robinson, Midhurst, (with enclosure;) Dr. Thomas, Liphook; Mr. Collins, (with enclosure;) Dr. Earlam, Northwich, (with enclosure;) Dr. Moore; Dr. Lowe, Lynn, (with enclosure;) Rev. H. Colesworth, St. Neots; Dr. Pennefather; Mr. Sinahay, (with enclosure;) Mr. Cann, (with enclosure;) Dr. Taplin; Dr. Padley, Swansea; Dr. Brown, (with enclosure;) Dr. Bretmer, Nutley; Mr. Ellis, (with enclosure;) Mr. Ashwell, (with enclosure;) Mr. Johnson, Stoke, (with enclosure;) Mr. Bothwell, (with enclosure;) Dr. Whitmore, Hounslow; Mr. R. Montgomery, (with enclosure;) Mr. Scott, Aldershott; Mr. Manning, East Bergholt; Mr. Swann, Paris; Mr. Hilditch, Brighton; Dr. Kirkman, Kent County Asylum; Dr. Fleming, Burt; Mr. G. Dawson, Crook, (with enclosure;) Messrs. Fletcher and Herbert, Uttoxeter; Dr. Jones; Mr. Blumner; Mr. Blower, (with enclosure;) Mr. M'Donald; Mr. G. Gibb, Darlington; Mr. R. N. Ellis; Mr. Wright, Edinburgh; Mr. Maffey, Pratton; Mr. Locke; Mr. W. D. Moore, (with enclosure;) Mr. R. Jackson, Tryssil, (with enclosure;) Mr. R. S. Ellis, Willingham, (with enclosure;) Mr. Young, Newhaven, (with enclosure;) Junius; W. T.; H. R.; A Constant Subscriber; A Glasgow Student; Leeds Dispensary, (with enclosure;) M.D. Edin.; Sakkos; A Degraded Naval Medical Officer; R. G.; Medicus; Bartholomæus; National Temperance League; A. B. C. D., (with enclosure;) Anthropological Society; Iatros; W. J. P.; Allopath, M.D.; M.D., (with enclosure;) A Looker-on; A Thirty Years' Subscriber; &c. &c.